

ELEMENTS
OF
GEOGRAPHY,
AND OF
NATURAL AND CIVIL
HISTORY.

CONTAINING

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| I. The Order of the Spheres. | V. Changes through different Ages
in the Manners of Mankind. |
| II. The Economy of the Sublunary
Works of Creation, inanimate and
living. | VI. VII. VIII. IX. Description of
the different Quarters of the World;
Europe, Asia, Africa, and Ame-
rica. Their Divisions into Coun-
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nerals, Mountains, Rivers, Lakes,
Canals, Commerce, Manufactures,
Curiosities, Schools, Learning, Li-
terati, Religious Professions, Lan-
guage, Government, History, &c. |
| III. Picturesque and general Sketches
of the different Parts of the Earth;
and the varied Appearances and
Manners of it's Inhabitants. | |
| IV. The Rise, Revolution, and Fall,
of the principal Empires of the
World. | |

BY JOHN WALKER.

THIRD EDITION.

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P R E F A C E.

COWLEY and MILTON did not err, when the one, in his Plan of an Academy, the other in his Epistle to *Hartlib* on the subject of education, earnestly proposed, that the principles of physical science, and of the chief practical arts of life, should be associated with those works of history, ethics, and elegant literature, which were wont to be put into the hands of youth, in the usual course of liberal instruction.

When JOHNSON, in his accounts of the Lives and Writings of those great Poets, affirms experience to have evinced the inutility of the innovations which they thus suggested; he contradicts the truth of the facts. The early propensities of children, their sports, the necessities of their mode of life, their restless activity, and their insatiable curiosity, give them, commonly, in the progress of their early years, a much more familiar and intelligent acquaintance with the physical laws and appearances of nature, than it is possible, that they can, in the same time, be, by any instruction, introduced to, with the principles of ethics, and *their* application to human manners. If a too early and too exclusive partiality for books; seclude the boy, unseasonably, from the sports of his fellows; or if he be thus confined by harsh or injudicious tutors; he is soon remarked to be deficient in *common sense*, which it is well understood, that no book-learning can, alone, bestow.

In proportion as knowledge and civility have been improved in England, in the course of these two last centuries, instruction in physical science, and in the arts of common life, has been continually more and more combined with that classical education which was once, exclusively, accounted *liberal*. The change has taken place tacitly and gradually. It has proceeded, not from the efforts of bold innovators, but from general feeling and universal, unforced conviction. Arithmetic, drawing, natural history, geography, the first elements of natural philosophy, and the practice of some of the simpler and more amusive, mechanic arts, are, thus, in part, taught to *children*, even

in some of those inferior schools, in which their literary education begins. Many of the new books of mingled instruction and amusement, which have been lately provided for children, and several new games which have been invented for them, are adapted chiefly to improve them in the physical knowledge of nature. Much more at *universities*, and in all the higher seminaries for education, has that exclusive preference, which was once given to the objects of classical instruction, gradually and beneficially declined. In those universities to which there is now the greatest concourse of students from all parts, studies merely literary hold but a very subordinate place. Those sciences which explain the laws and appearances of material nature, are there taught with at least as much diligence and success, as those which relate only to moral and intellectual things. In teaching the principles of the physical sciences, almost all the operations of the mechanical and chemical arts are, more or less, particularly described. Into that more imperfect education, too, which the young trader, farmer, or artisan receives, the first principles of physical knowledge, have, since society began to be more enlightened, been, at least in an equal proportion, introduced, both by express scholastic instruction, and by means of books. Nor have we any reason to think, that this gradual change in our modes of education, has tended either to dwarf the genius of the rising age, or to make it shoot out in an unnatural and barren luxuriance. Whatever prejudice or ignorance may, at any time, affirm to the contrary; it is certain, that Englishmen have, neither in moral nor intellectual excellence, declined from the illustrious example of their forefathers.

Of all the various books that have been, at different times, provided, to convey this mixed instruction, which is the best adapted for the uses of life, perhaps none have been so long and so extensively serviceable, as those **SYSTEMS OF GEOGRAPHY**, which are now in universal reception among readers of all classes. Of pure **GEOGRAPHY**, it is the proper business, "to describe the figure of the earth, to explain it's more
"general relations to other surrounding orbs; to mark those

PREFACE.

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“ natural divisions of it's surface, which arise from differences
“ of temperature and illumination, with those which are pro-
“ duced by inequalities of level, by the distribution of the
“ waters, and by any very remarkable distinctions of animal or
“ vegetable produce ; perhaps, also, to mark the chief divisions,
“ artificial and civil, by which this earth is parted out among
“ different nations, states, and tribes.” But, in those SYS-
TEMS, it is not *pure* GEOGRAPHY that is represented, but
GEOGRAPHY delivered, as much as possible, from the austere-
rity of abstract science, and associated with every other branch
of useful knowledge, that can be brought easily into combina-
tion with it. Much of *natural* and of *civil* history, a wide
display of the transactions of commerce and the practice of
the arts, an explication of the simpler principles of astron-
omy, a variety of details concerning laws, manners, and political
regulations, with many incidental hints of the fundamental
truths of the mechanical philosophy, are interspersed through-
out their tenor, and compose it's most interesting and instruc-
tive parts. Knowledge is, here, presented to the mind in a
sort of orderly confusion, not unlike to that in which it is
to be read in the works of Nature, which gives much more
delight, than dry precision, discrimination, and formality.

The following SYSTEM OF GEOGRAPHY was, in it's first
composition, intended to accomplish the general purposes of
such books, more fully and effectually than any former system
of the same sort. It was thought by the ingenious author,
that a popular view of the principles of what is called NA-
TURAL PHILOSOPHY, might be, with sufficient propriety,
and certainly with very great advantage, exhibited in his
work ; since, even the most general facts relative to the earth
could not well be understood without some knowledge of
the principal modifications of the great law of GRAVITA-
TION. CHEMICAL ATTRACTION is so much more ex-
tensive, than was once imagined, in it's influence on all the
appearances of Nature ; it's laws are, in their operation, so
beautiful, so sublime, and so important ; it enters so deeply
into the better half of all the arts of life ; and recent dis-
coveries

coveries had made it so much a favourite object of general attention; that he could not but think a short, perspicuous view of the Elements of Chemistry, likely to prove extremely useful to most of those into whose hands his book might be expected to fall. Of the charming science of BOTANY, it seemed peculiarly requisite to introduce some explanation; for, without this, how should the reader peruse, with clear intelligence, those subsequent parts of the book, which were to speak of the various plants peculiar to the soil and climate of every different country? Without some sketches of ANATOMY, it would have been impossible to communicate any clear and just notions of the most important particulars in the *Natural History of Man*: Nor is there any part of speculative science, more engaging or useful than the PHYSIOLOGY of the human body, in the state of improvement to which it has been at length advanced. In tracing the Natural History of Man and of Society, it was thought necessary to exhibit together, an assemblage of all the most curious and uncommon facts, which voyagers and travellers have lately furnished concerning them. Of the *inferior animals*, too, and of what may be termed the *general Physiology of the Earth*, such sketches were given, as seemed the fittest to open the mind for the farther study of this entertaining and eminently useful branch of knowledge.

So far, the plan of the judicious Author was, for a SYSTEM OF GEOGRAPHY, new and peculiar. In the execution of the other parts, there was a beaten track, which he might not easily avoid following. The wonted *technical language* of Geography, he was careful to explain with perspicuity and precision. Where the divisions of the Earth's surface, the comparison of it's movements with those of the other planetary bodies, it's diversities of local aspect, temperature, and illumination, were to be best explained by the use of GLOBES and MAPS; these he carefully taught his reader how to understand and employ. Of every different region of the Earth, and of all it's chief *civil* divisions, he was attentive, accurately to mark the peculiar features, and to define the li-

mits.

mits. Under the head of every different country or kingdom, he gave, as had been usually done, a sort of compend of it's Natural, Civil, and Military History. He proportioned the relative importance of every country, in his System of Geography, to it's importance in the scale of civilized states, and in it's relations to the British empire.

He breathed into the whole work an animating spirit of freedom, virtue, and generous philanthropy, by which it was fitted to refine and exalt the sentiments of the heart, not less than to inform the understanding with a happy mixture of practical science. He wrote with the genuine ardour of a faithful votary of knowledge: and there were, in his language, a spirit, an elegance, a correctness, exceedingly superior to the tenor of composition in those geographical compilations which the interests and artifices of booksellers have too long obliged the public to buy, though it could not approve. An air of philosophical ingenuity, too, was diffused over the whole, which might tend to communicate to the reader's mind, somewhat of the power of philosophic invention and research; instead of suffering the book to operate with that torpedo-influence, benumbing all the faculties, which *compilers* and their *compilations* hardly ever fail most efficaciously to exercise, to the utter extinction of genius.

The hopes and wishes of the Author and the Publishers have been amply gratified. A large edition was disposed of, in the way of *subscription*. General approbation expressed by those into whose hands the book fell, after it's first appearance; and the remarkable superiority which it was found to possess, as a **SYSTEM OF GEOGRAPHY, &c. for the use of Free SCHOOLS, ACADEMIES, and UNIVERSITIES, for MERCHANTS, FARMERS, MARINERS, ARTISANS, for PERSONS of LIBERAL CURIOSITY throughout all the departments of busy life; in a particular manner, for the use of MOTHERS who disdain not to watch over the education of their children, and indeed, for the use of the FEMALE SEX in general;** soon rendered it necessary to republish the work, in a second edition. That edition, though ample, has been entirely fold.

sold. The increasing preference of the public for the book, has occasioned this third edition to be prepared.

The change of things since the time of the publication of the first edition, was thought to demand some alterations, curtailments, and additions. Written at a period when the enthusiasm for moral and political improvements was naturally esteemed the noblest of human sentiments; it had received from the bold, glowing mind of it's author, perhaps too strong an infusion of that generous extravagance of thought. Subsequent events have evinced, that there is no other more fruitful source of universal mischief than such headlong ardour for innovation: *and every wild, political sally has, therefore, been, in this edition, religiously suppressed.*

In a work exhibiting a popular view of so wide a range of science, it could not be, but that some slight mistakes should elude either the knowledge or the care of the Author. Whatever objects of this sort could be discovered, have been, in the present edition, attentively removed.

New discoveries made by voyagers and travellers, new events in the progress of political society, demanded changes and additions, which have been diligently made, in the topographical and historical parts of this work. It now exhibits faithfully the present state of British Geography, and of the knowledge, usually connected with it, for all the different parts of the world.

These alterations and additions could not be executed by the Author himself, who is not now in England. But, the task of performing them, and of superintending this third edition, in it's progress through the press, was committed to a person, who had some experience in such matters; who entertains great deference for the talents and extensive knowledge of the Author; and who has taken much pains to leave nothing unamended that actually required emendation, without altering any thing from the mere wantonness of using impertinent freedoms with the writings of another.

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SECT. III. The Solar System and Starry Heavens.

Astron. Encyc. Brit. Bonnycastle, Boyce, J. Churchman Philadelphia, J. Ferguson, J. Grubb Clonmell, Herschell, R. Jackson Dublin, Newton, J. Swan London, A. Walker.

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SECT. VI. The Mineral Department continued, including the Solids, &c. as Alkalis, Acids, Earths, and Stones, Semi-metals, and Metals.

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SECT. VIII. The Animal Department, including the Structure and Nutriment of the Body, the Circulation of the Fluids, &c. and the Division of Animals into Quadrupeds, Birds, Amphibia, Fishes, Insects, and Worms.

Agricul. Encyc. Brit. W. Allen London, T. Bell Dublin, Chaptal, Cheselden, W. Dease Dublin, Electr. Encyc. Brit. W. Fardon Witney, Goldsmith, Locke, D. Monro, T. Pole London, J. Priestley, Rousseau, J. Wagstaff Norwich, T. Waite Dublin.

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*Alexander, Benezet, Bible, Clarkson, Cook's, and other Voyages, Crantz,
W. Dixon Edinburgh, Goldsmith, Raynal.*

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Bible, A. Ferguson, Guthrie, Hist. Encyc. Brit. Justin, J. Prieſtley.

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Bible, Boyce, Gibbon, Millar, Robertſon.

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*Gordon, Guthrie, M. Wollſtonecraft, Jones, Martyn, T. Payne, J. Prieſtley,
Salmon, Voltaire, Vyſe, C. B. Waſſtrom.*

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—SECT. XLVII. Aſiatic Iſles.

Guthrie, Jones, Martyn, J. Prieſtley, Salmon, Vyſe.

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Guthrie, Jones, Martyn, J. Priestley, Raynal, Salmon, Vyse.

*** The names in italic are authorities consulted, and the correspondents, who have supplied information to the work.

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E L E M E N T S
OF
GEOGRAPHY,
AND OF
NATURAL AND CIVIL HISTORY.

P A R T I.

ORDER OF THE SPHERES.

IN the remote ages of antiquity, ere man had made any great progress in science; in the yet uninformed nations of the world; among those people in improved nations who think on the nature of things but seldom, and then very superficially; and among the puerile reflections of the greatest geniuses,—vague and romantic have been the conjectures respecting the form, extent, and boundaries of the earth.

From our imperfect view of things, we are naturally induced to suppose it necessary for every heavy body to have something to rest upon, or be suspended from; hence, some have imagined the stars to be lamps let down from heaven by golden chains; the sky, a vast arch; the earth, an extended plain, resting on they knew not what, and bounded they knew not how.

SECTION I.

Of the Earth, Planetary Motions, Mechanics, Seasons, &c. Moon, Eclipses, Tides, &c.

1. *Figure of the Earth.*] It clearly appears, from the researches of men of science, that the land and water of our world, together form

B

a large

a large round body, which is balanced in the firmament, like the moon and planets; a globe of so prodigious a size, that its highest mountains are, compared to itself, but as a grain of dust on an artificial sphere; and to us, little mortals, who dwell on its surface, its spherical figure is hardly discernible; yet, without sailing round the world, as many have really done, we have sufficient reason to conclude, with but little observation, that the earth is a globe, or of some similar shape.

If we take a stand on the sea-shore, on a clear day, and view ships leaving the coast, in any direction whatsoever; as they recede from us, we may distinctly observe the rigging of the vessels, when the hulls are quite out of sight, as if sunk in the waters. An observer in an evening, from the top of a hill, may distinctly see the setting sun, when it appears to those below, to have sunk below the horizon; nay, a person swift of foot, when it has set to him below, may in some situations, by running up the hill, regain his view. Thus, when rising, does it first tip the tops of the mountains with its rays; and thus do sailors, on their first making land, discover the high parts of the coast, but not the very shore, till they are pretty close in with the land.

Now, were the surface of the sea an extensive plain of waters, through defect of sight only, thickness of atmosphere, or some such like causes, we should lose sight of the objects, and then they would disappear all at once. Moreover, at the time of a lunar eclipse, which is produced by the earth's being between the sun and moon, and thus intercepting the rays of the former from the latter, we have an indubitable proof of the rotundity of the earth from the form of its shadow, which is always bounded by a circular line.

2. *Antipodes and Attraction.*] If then this huge mass of matter, this whole earth, be a globe or round ball, we may naturally enquire, from what does it hang, or what is there beneath to keep it up? How are things supported on its surface? And what miserable people are our Antipodes, walking with their heads downwards?

No race of people on our globe walk with their heads downwards, though their faces may be directed to every part of the heavens, through their inhabiting the different parts of the surface of the round world; and our Antipodes walk as erect as we do, though their heads are diametrically opposite from ours; for they are as strongly drawn to their part of the earth as we are to ours; and might as reasonably imagine that we are under the strange predicament of walking with our feet upwards, like a fly on a ceiling.

It seems to be an universal law in the creation, that bodies have a mutual attraction, tendency, or gravitation towards each other; and the heavier bodies are, and the nearer they are to each other, the more strongly are they attracted. The cause is inexplicable from any enquiries in natural philosophy, and can only be resolved into the will of the Creator, whose works we may contemplate with wonder, but the least of which we can never fully comprehend.

That this attraction exists, is deduced, not only from speculation on the nature of things, but from actual experiment.

A weight

A weight suspended by a string from the precipice of a mountain, if undisturbed by any current of air, or if it be perfectly calm, is observed to deviate from a perpendicular. The prodigious mass of matter contained in the mountain, attracts the weight towards itself.

In like manner, if two bundles of ropes of equal weight be suspended at the ends of an accurate balance, or scale-beam, on the surface of the earth, they will equiponderate; but if one of these ropes, instead of being rolled up in a bundle, be loosened out, and let to hang at length down the mouth of a deep coal-pit or mine, the rope thus extended loses some of its weight, though it hang perfectly free as before from the end of the balance; and the rope that remains above preponderates through the other's being attracted by the sides of the coal-pit, in directions counteracting its perpendicular descent. May it not be owing to something of this sort, that soundings cannot be obtained at sea beyond a certain depth? for if there were nothing to prevent the plummet from sinking but the buoyancy of the string, would not an increase of the weight, or of the size of the plummet, cause it to sink to the greatest depth?

The principle of attraction seems to be as a chain in the works of the creation, to bind the elements under harmonious order and wholesome laws; for it appears to be owing to this that the world remains a solid ball; the sea keeps in the depths of the earth; the mountains rest firm on their foundations, and things universally hold their respective places.

By the same principle of attraction, the rivulets of water tumble from the hills, glide down the vallies, and settle in the deep. The air is an elastic fluid. It also gravitates towards the earth, becoming heavier the lower it descends; and, if there be any light bodies in the way, such as smoke, mist, &c. whether at large, or confined in balloons; any things lighter than itself; these naturally ascend, through the air's superior gravity, to regions of equal rarity with themselves; as the dense water bears up light things from sinking, while heavy bodies force their way to the bottom, in spite of all the resistance the water can make.

3. *Divisions of the Earth.*] The most obvious divisions that present themselves, on a view of the surface of our globe, are those that are made by the yielding water on the crooked shore; these are outlines in some measure fixed and permanent.

A continent is a large track of land not separated by the sea; as Europe, Asia, &c. An ocean is a vast collection of water not separated by land; as the Atlantic, Pacific, &c. A sea is a smaller collection of water communicating with the ocean; as the Mediterranean, the Baltic.

An island is a track of land surrounded by water; as Great Britain, Ireland, &c. A lake is water surrounded by land; as the Lake of Geneva.

A cape or promontory is a point of land running far into the sea; as the Cape of Good Hope. A bay is a part of the ocean running far into the land; as the Bay of Biscay.

A peninsula is land almost surrounded with water ; as the Morea. A gulph is a part of the sea almost surrounded with land ; as the Gulph of Venice.

An isthmus is the narrow part of land which joins the peninsula to any country ; as the Isthmus of Suez. A strait is a narrow passage from one sea to another ; as the Strait of Gibraltar.

Geographers have usually divided the world into four quarters ; Europe, Asia, Africa, and America. If we take Europe, by much the smallest division, as a place of departure, America lies to the west, Asia to the east, and Africa to the south. America is called the New World by Europeans, from their having but lately discovered it ; the other quarters they call the Old World. America is separated from the old world, on the west by the Atlantic Ocean, on the east by the Pacific, and stretches through every inhabited latitude or climate of the earth.

The ocean, with which the earth is encompassed, is divided into five principal parts ; the Atlantic, having Europe and Africa E. and America W. ; the Pacific between Asia and America ; the Eastern, or Indian, which washes the eastern coast of Africa, and the shores of Asiatic India ; the Northern, through which the passage to the Pacific has been attempted from Europe in vain ; and the Southern, which is blocked up with ice in still lower latitudes than what have been passed in the northern hemisphere. The seas are more than three or nearly four times the extent of the land ; and of the most extensive quarters of the world we know little more than the coasts. The four quarters of the globe are computed to bear nearly the following proportion to each other : If Europe be 1, then Africa will be 3, and Asia and America more than $3\frac{1}{2}$ each.

Men of science have laid out the earth in degrees of longitude and latitude, and divided it into zones and climates.

Besides these, there are other divisions of a more varying character ; such are the political boundaries that separate kingdoms and empires.

Kingdoms, provinces, towns, &c. are divisions of the earth that change with the affairs of the nations that have made them ; and accordingly, in different ages, they alter their appearances.

4. *History of Geography.*] Our knowledge of the different parts of the earth we have derived from the accumulated observations and discoveries of distant ages and different countries. We may reckon Moses and Homer among the geographers of the most early times ; but the places and the people mentioned in their writings, are generally now no more. The Macedonian Alexander employed engineers in his service, whose business consisted in measuring and keeping an accurate account of his marches. These were extended into India, the borders of Scythia, through Judea and Egypt. By reducing Tyre and Sidon, the Greeks informed themselves of the places to which the Phenicians traded by sea. Ptolemy Evergetes led his armies into Abyssinia, and thereby obtained a knowledge of that distant country. The conquests of the Romans added both extent and correctness to the geography of the antients. The great roads of their vast empire were measured through their whole extent, and the itineraries
thus

thus formed were extremely useful. Accordingly, the geographers of those times were enabled to describe countries before hardly known, and correct the errors of former writers. Their knowledge of the earth's surface however was but little, if compared with the discoveries of the later Europeans. In the fifteenth century, the Portuguese opened the way to the Pacific Ocean by the Cape of Good Hope. The Spaniards afterwards attempted the passage to India, on the west, under Christopher Columbus; but instead of India, they discovered America. It were unseasonable here to enter into a detail of what followed: how the other European powers embarked on similar enterprizes; how they have penetrated into every habitable climate on the earth; and how they have often abused their superiority among artless and feeble nations. In short, from the travels of missionaries and adventurers, and from the voyages of navigators, we have now an acquaintance with every quarter of the globe.

5. *Universe.*] The principle of attraction, by which the order of sublunary things is kept up, seems to uphold, not only the component parts of the earth, but the globe itself, and the whole universe.

The earth is a planet. It and six other primary ones move round the sun in orbits, nearly circular; two of the others within the earth's orbit, and four without: some of them have secondary planets, satellites, or moons, accompanying and moving round them in their orbits, as our earth has one moon: the comets also move round the sun. All these together seem to complete our solar system.

From the motion of the earth on its axis, and from its orbit round the sun, are derived all the changes of night and day, and the vicissitudes of the seasons that we experience; and as the other planets are subject to the same physical laws as our earth, astronomers conclude that they have their seasons, their days, and their nights, as well as our earth; as also inhabitants suited to their respective regions.

It is conjectured that the fixed stars are all suns. They are called fixed, from their being comparatively stationary. They do not seem to wander like the planets; yet a motion has been discovered in some of them; and it is supposed that they may, even all of them, be in motion.

It is also thought probable that planets may revolve round them, though, from their immense distance from us, we cannot discover them.

The social idea prevails, that these may be the mansions of beings suited to their places; to whom the Great Parent dispenses marks of his goodness as well as to us. And indeed, from the immense distance that the fixed stars are at from us and our system, it may not be inconsistent with the truth to believe that those huge vivid globes, lost to our view in a point, were created to support and cheer other creatures, rather than merely to guide us in our little peregrinations on the globe, or to assist us in our astronomical observations.

6. *Centripetal and Centrifugal Forces.*] It is supposed that a mutual attraction exists between the sun and fixed stars, or suns, by which they are all poised in equilibrio; that the suns are a sort of centres of gravitation to the planets that surround them; that the attraction or cen-

tripetal force, which would alone draw them to the centre, is nicely combined with an impulse which these bodies have received, and which of itself, and unrestrained, would cause them to fly off in a right line through the immensity of space : this impulse is called the centrifugal force : that by the combination of centripetal and centrifugal forces, the planets are naturally carried in orbits round the sun ; that the primary planets are as centres of gravitation to their satellites or moons ; and the revolution of these is accounted for from the same physical laws.

It is observed in the natural world, that matter is of itself passive, indifferent as to motion or rest ; that hence, were a body put in motion, it would continue to move on a right line, without end ; or if it were at rest, it would for ever remain so, unless there were some active cause to produce a change.

Fig. 1. Let A. be a body uninfluenced by the attraction of any other body ; let us suppose that it receives an impulse that would carry it in a certain time to B ; if at the same time it receive a contrary force of equal strength that would alone in the same time carry it to C, the contrary impulses will neutralize each other, and the body will remain at A ; but if, with the original impulse that would have carried it from A to B, if not interrupted, it receive at the same time a force that would of itself carry it from A to D, the body will move in or describe the diagonal A E from the combinations of the forces A B and A D, and will at the end of the certain time, be exactly at the same distance as when it first set out from the places B and D, where the acting forces respectively tended to carry it, if the forces be equal. But, if the impulses A B and A D be unequal (fig. 2.) the body will be found at the same distance from the more remote place of tendency B, as it was from the nearer D ; and at the same distance from the nearer place of tendency D, as it was from the more remote one B, on its first setting out from A. When the forces are equal, the diagonal A E, or motion produced by the combination of the two impulses, according to the directions of the force applied, vary through every degree of swiftness, from absolute rest, to the aggregate of both velocities added together, or produced in one right line. When the impulses are unequal, the swiftness of the body will vary, according to the direction of the forces, from the sum of the two velocities added together to that of the greater, when the less is subtracted from it.

Fig. 3. From these known principles of matter put in motion, it is discovered how and why the planets move in orbits round the sun. Let S. represent the sun ; ES. the attractive force whereby the earth is drawn toward the sun ; EF. the centrifugal impulse : by the combination of these two forces acting at the same time upon the earth (or it may as fitly be said, between the conflict of the two) it would naturally move along the line EE. in the same time it would have moved along either of the other lines singly ; but as the centrifugal and attractive forces act not by starts, but uniformly and constantly, the earth, instead of being moved along in right lines, is naturally resolved into a curved one, or orbit EOE,

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It may here be remarked, however, that the sun is not strictly a centre of gravitation to the planets, nor are the primary planets that have moons or satellites accompanying them, strictly centres to the orbs that revolve round them.

From the inexplicable law of gravitation or attraction that universally prevails in the natural world, it may readily appear, that if the sun and the earth were the only bodies in the universe, and they at rest at a distance from each other, by their mutual attraction they would directly be drawn towards each other. The sun being a million times bigger than the earth, the latter (as a light skiff drawn to a large vessel) would move with great velocity, and fall to the sun; the sun would slowly meet the coming of the earth. As each would thus be influenced by the other, so the centrifugal force which, combined with attraction, carries the earth round in its orbit, and prevents it from falling into the sun, also carries the luminary round in an orbit, and prevents it from falling to the earth; and the centre of their revolution, or their centre of gravity, lies between the two bodies. As the earth is but very small in comparison with the sun, it is carried round in an orbit proportionably larger than that of the luminary; and their common centre of gravity lies consequently very near the centre of the sun. The same laws hold between the sun and other planets, and between the primary planets and their satellites, or moons.

7. *Mechanics.*] On these principles, which support the order of the spheres, the science of mechanics wholly depends; and on a very slight view of the mechanical powers, there seems a familiar representation of the natural laws of the universe.

The mechanical powers have been reckoned six; the lever or balance, the wheel and axis, the pulley, the wedge, the screw, and the inclined plane. The three latter may be considered as different modifications of the principle of the inclined plane; the three former, the same of the balance or lever.

It is a law in mechanics, that whatever be the force of the power applied, it can produce no more than a certain effect. This effect, therefore, is only differently modified by all the various contrivances of machinery. By some machines velocity is acquired; but what is gained in swiftness or time, is lost in power. By others an increase of force or strength is gained; but what is acquired in power is lost in velocity or time. So the effect remains ever only equal to the force applied, whether the weight of a stream of water, as in mills; the expansion of steam, as in fire-engines; whether the strength of a horse, the force of a man's arm, or any other thing. If therefore we consider two weights, as contrary forces applied to any of the mechanical powers or machines; in whatever proportion the greater exceeds the less; if, in the same proportion, the rise or fall of the less exceed the ascent or descent of the greater when the instrument is put in motion, the weights, however different their magnitudes may be, will themselves naturally equiponderate, if the machine be let to rest. Thus in the instruments or machines, Fig. 4, 5, 6, 7, 8, &c. when put in motion, if the weight G be to the weight or power of the hand, applied at Q as the ascent, descent, or motion of Q is to the rise or fall

of G , the weight or forces G and Q shall, if left to themselves, naturally balance each other.

All the mechanic powers are subject, in some measure, to impediments from friction; but setting this aside, we may consider the nature of these instruments only in theory.

The Inclined Plane affords a means of raising a weight with less force than what is equal to the weight itself. Suppose it were required to raise the globe G (Fig. 16) from the ground HP up to the point whose perpendicular height from the ground is HI . Let the globe G be drawn by a cord parallel to the plane IP ; let the cord be continued on and passed over the pulley; and let the weight Q be hung to it, or a hand may be applied to it. Now if the weight G bear the same proportion to the globe Q as IP bears to IH ; *i. e.* as the fall of Q bears to the direct ascent of G from the ground, the smaller weight or force of the hand at Q will support the globe G .

The Wedge may be considered as two inclined planes, joined together obliquely, for gaining power. When a wedge is put under any weight to raise it up (Fig. 17) the force with which the wedge will lift the weight, when driven under it by a blow on the end GAB , will bear the same proportion to the force wherewith the blow would act upon the weight, if directly applied to it, as the velocity which the wedge receives from the blow, bears to the velocity wherewith the weight is lifted by the wedge; *i. e.* as the length of the wedge is to the utmost thickness GAB ; and the same proportion holds in cleaving timber, or producing any similar effect.

The Screw may be considered as an inclined plane, twisted round a roller; sometimes it is double, treble, or fourfold; or it has two, three, or four threads, or twisted inclined planes. There are two ways of applying this instrument. Sometimes (Fig. 18) it is screwed thro' a hole or box, fitted to the screw or pin. Sometimes (Fig. 19) it is applied to the teeth of a wheel fitted to receive it. In both these cases, if a bar QK be fixed across the screw, the force wherewith the end G of the screw (Fig. 18) presses, and the force wherewith G the teeth of the wheel (Fig. 19) are pressed, bear the same proportion to the power Q applied to the end of the bar, as the velocity of the end of the screw, or of the teeth of the wheel, bears to the velocity of the power Q when the screws are turned.

It is easy to estimate the effect of the pulley, simple or combined.

In Fig. 9, where the weight hangs from one string, the power E suspends a weight equal to itself. In Fig. 10, where the weight hangs from two, the power Q holds a weight double of itself. In Fig. 12, where the weight hangs from five, the power Q balances five times its own weight. In Fig. 11, where six strings support the weight, the power Q suspends six times itself.

There are two other ways of supporting a weight by pulleys; one of these is represented in Fig. 13. Here the weight being connected to the pulley B , a power equal to half the weight would support the pulley C , if applied immediately to it. A power only equal to half of that which supports C would support D ; but half of this last power applied

applied as at Q, suspends D, and consequently the weight G; the power, therefore, at Q holds eight times itself, applied at G.

Another way of applying pulleys to a weight, is represented in fig. 14. To explain the effect of pulleys thus applied, it will be proper to consider different weights hanging, as in fig. 15. Here, if the power and weights balance each other, the power Q is equal to the weight; B C is equal to both together; and D is equal to the power Q and the other two weights. All the three weights together, then, are equal to seven times the power Q. But if these three weights were joined in one, they would produce the case of fig. 14, so that in that figure the weight G, where there are three pulleys, is seven times the power Q. If there had been but two pulleys, it would have been three times; and if four pulleys, fifteen times the power.

The Lever is generally understood to be a bar made use of for moving great weights, or effecting some great force.

Fig. 5, 6. The bar is applied in one part to some strong support; this is called the fulcrum, and is the centre of its motion; the farther the power Q is applied from this centre, the greater must be its motion, but the greater weight will it raise at G. On the contrary, if we suppose G to be the power, and Q the effect, or the weight to be raised, the nearer the fulcrum the force is applied, the less will be its power, but the greater velocity will it give to Q. We may consider our own limbs as levers of this latter description.

A lever may be hung upon an axis, fig. 7, and then the two arms of the lever need not be continuous, but fixed to different parts of the axis, and the axis here must be considered as the fulcrum.

From this case of the lever hung upon an axis, it is easy to make a transition to the wheel and axis, fig. 8. Here the axis may be considered as fulcrums, and the wheels and rollers as levers, whose lengths are their semidiameters. By different combinations of the wheel and axis, many of the most complicated machines are principally made out; and the way of communicating motion from one wheel to another, is by means of teeth at the extremities of the wheels, or by cords or bands, as in the combinations of pulleys.

It has already been remarked, that no combinations of the mechanical powers, however nice or complicate, can increase the whole effect of the force applied; the force can only be modified into certain degrees of strength or velocity.

We may read the laws that govern the spheres, in the properties of any of these instruments, whether simple or complicated: but they appear the most obvious in the simple lever, balance, or steelyard. If the two balls G and Q be connected together by an inflexible rod, steelyard, or lever, drawn from centre to centre, and the rod be so divided in C, that the part C G bears the same proportion to C Q as the ball Q bears to the ball G, then the rod being supported at C, suppose by a thread, will uphold the ball. Now if the thread be twisted, so as to make the balls turn round their common centre of gravity C, it is evident that the smaller ball will perform a larger circle than the greater; in fact, it will be carried round the orbit of the greater.

So it is with the moon moving round the earth, and so with the earth revolving round the sun, accompanied by the moon.

8. *Changing Seasons.*] Fig. 20. The earth turns round on its axis at the same time that it moves in its orbit round the sun. This revolution is performed in the space of twenty-four hours. As any part of its surface is turning towards the sun, to that part the luminary seems to rise, and it is morning to the inhabitants; turned opposite to the sun, they enjoy noon; turning from the sun, it seems to set, and they have evening; and turned from the sun, they are involved in shadow, which is night.

From the rotundity of the globe, the sun darts its rays direct on the heads of some, while on others it shoots its beams very obliquely: hence the polar regions are uninhabitable, through extreme cold, while the nations of tropical countries, or those directly under the sun's rays, are coloured black by the intense heat.

In the different parts of the world, from the equinoctial to the poles, or terminations of the axis of the earth, the days and nights vary in length, from the same cause which produces the seasons.

At the poles, day and night alternately succeed each other at intervals of six months; for during all the time between the vernal and autumnal equinoxes, or while the earth is moving from spring to autumn, when the sun is no longer visible at the south pole, it gives continual day to the arctic region; and, the remaining part of the year, the polar circle of the north is involved in night, while the antarctic, or south pole, is in the glare of perpetual day.

Were the earth to move round the sun with its axis perpendicular to its orbit, a regular succession of equal days and nights would uniformly take place in the different parts of the earth; for the sun illumines half the globe at once (fig. 20) and every part of its surface would alternately experience a change of twelve hours light and twelve hours darkness, from pole to pole; but the axis of the earth is found to incline $23\frac{1}{2}$ degrees from a line perpendicular to the plane of its orbit, and it keeps the same oblique direction throughout its annual course: hence the days and nights vary in their length at different times of the year; and hence the changes of the seasons arise.

In fig. 21, 22, 23, let the circles E Q represent the equator, and E C the ecliptic, or the annual path or orbit of the earth, and we may easily see that the earth has day and night impartially and equally distributed all over its surface, only when it is at Sp. or Aut. in its orbit, where the equator and ecliptic intersect each other. In its moving from Win. by Sp. to Sum. in its orbit, we, the inhabitants of the northern hemisphere, have the days increasing in length, and weather growing warm; while those of the southern hemisphere experience exactly the reverse. In its moving from Sum. by Aut. to Wint. we have days decreasing, and weather growing cold, while the inhabitants of the southern hemisphere enjoy lengthening days and increasing warmth.

In fig. 21, 22, 23, let S. represent the sun; the four globes the earth in different parts of its orbit, receiving from its changing position the varying seasons of spring, summer, autumn, and winter, as it would appear to the eye situated (fig. 21) between the sun and polar star; consequently, the pole of the earth towards the eye (fig. 22) beyond

yond the earth's orbit, at the autumnal equinox; fig. 23. beyond the earth's orbit at the estival solstice, or midsummer. If the spot on the globes be supposed to represent Ireland, we may easily see how equally light and darkness would be distributed to it at the time of the equinoxes, or in spring and autumn; how small a share of sunshine it would be turned into in winter; and how short a time it would be obscured in shade, or night, in summer. These things may be all pleasingly exhibited beyond all description, by an easy experiment. If a couple of hoops be fixed in the direction of E Q and E C (fig. 22) and a candle placed as at S, we may, by suspending an artificial ball from a thread, as Sp. from H, and moving it easily along the hoop E C, be agreeably entertained with a pretty miniature representation of all the changes of day and night, and the varied seasons naturally produced on its surface, by the rays of the candle striking on it, as it rises or falls in the different parts of its orbit or hoop, and as it naturally revolves on its own axis, by its touching the hoop; or we may make the same exhibition without using the hoops, by gently twisting the thread, to make out the vicissitudes of night and day; taking care to raise and lower the hand at proper intervals, to mark the changes of the seasons, as we carry the ball round the candle.

9. *Apparent irregularities.*] The firmament appears to be the part of creation where the greatest order, simplicity, and regularity prevail. By the motions of the spheres our ideas of time are entirely regulated, and all its divisions depend on their regular revolutions, or stated returns; yet even here we meet with difficulties in every attempt to investigate the precise order and magnitude of the shining orbs: we call them irregularities; such they appear to us, creatures of a day; and all the doctrines of astronomy, established with the greatest accuracy on the nicest observations, and the most laborious investigation, are, and must for ever be, incompetent to discover and tell where the regular confusion ends: moreover, placed as we are in a dense and changing atmosphere, we scarcely ever see the heavenly bodies as they really are. When they are not vertical, or directly over our heads, their situation is not exactly the same it appears to be: from the refraction of the atmosphere they appear higher than they really are.

10. *Orbits elliptic, Time unequal.*] Hitherto we have considered the sun and the earth as regularly moving round one common centre of gravity; however, as there is a number of planets in our system revolving continually, like our earth, round the luminary and in different periods of time, the sun may be more fitly considered as agitated round their several centres, accordingly as it is attracted by them in their different directions; nor are their orbits round the sun perfectly circular, but elliptical, the planets sometimes receding from, and sometimes approaching nearer to the sun.

If a thread be tied loosely round two pins stuck in a table, and moderately stretched by a black-lead pencil, carried round in an upright position, an oval or ellipsis will be described by the point of the pencil; the two points where the pins are fixed are called the focuses, or foci: a line drawn through the foci to the periphery, is the longest or transverse axis, and equals in length any two lines drawn from each
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of the foci, and meeting at the periphery. The eccentricity of a planet is the distance between its centre and either of its foci.

Beside the changes in the length of the days already described in the different seasons, there is another sort of change, not so obviously noticeable. The day and night together, or, in general, 24 hours, form the natural, or solar day; and this period of time also varies in its length. The inequality of the solar day is produced by two causes, either of which singly would yield the effect; these are the obliquity of the ecliptic, and the earth's unequal motion therein. The earth's motion on its axis being uniform, and equal at all times of the year, its days would be equal, if its orbit were a perfect circle, and its axis perpendicular to the plane of its orbit; but the earth's annual motion in an elliptic orbit, causes the sun's apparent motion in the heavens to be unequal. When the sun's annual motion in the heavens appears slowest, it is noon, or 12 on the sun-dial, before it is the same hour on a true-going clock; and when quickest, it is 12 by the clock before the sun be over our meridian.

Although the earth be said to complete an orbit round the sun in the course of a year, it does not return exactly to the place it set out from, neither is its circuit completed exactly in a year. Adopting, therefore, the apparent motion instead of the real; if the sun set out as from any star, or other fixed point in the heavens, at the moment it is departing from the equinoctial, or from either tropic, it will come to the same equinox, or tropic again, 20 min. $17\frac{1}{2}$ sec. of time, or 50 sec. of a degree, before it completes its circuit round the heavens, so as to arrive at the same fixed star or point from whence it sets out; for the equinoctial points recede 50 seconds of a degree westward every year, contray to the sun's annual progressive motion. This is what is called the Precession of the Equinoxes.

When the sun arrives at the same equinoctial or solstitial point, it finishes what we call the tropical year; which, by observation, is found to contain 365 days, 6 hours, 9 minutes, $14\frac{1}{2}$ seconds. — The civil year, which we state at 365 days, 6 hours, is almost a mean between the fiderial and tropical. As this year exceeds the solar, tropical, or we may say, the true year, the difference being 11 minutes, 3 seconds, an anticipation of the equinoxes, and consequently of the seasons takes place, by a day being intercalated every fourth year, which in 1433 years amounted to 11 days. This was the error which was rectified by the change of the style.

11. *Changes in the Solar System.*] The precession of the equinoctial points in the heavens occasions a slow and continual deviation of the earth's axis from its parallelism, and thereby a change of declination of the stars from the equator, together with a slow apparent motion of the constellations of the zodiac forward with respect to the signs of the ecliptic, insomuch that the sign of Aries is now in Taurus, that of Taurus in Gemini, &c. and those stars which rose or set at any particular season of the year in the time of Hesiod, Eudoxus, Virgil, Pliny, &c. do not now answer to their descriptions.

The earth's axis being $23\frac{1}{2}$ degrees inclined to the axis of the ecliptic, the poles of the earth being pointed to the heavens, describe two circles

circles 47 degrees in diameter round the poles of the ecliptic, by the deviation of its parallelism; a revolution which it requires 25,960 years to complete. The sun in the same part of the heavens as seen from the earth, when it yields to us the summer, would in half this period give the longest days to the southern hemisphere; and at the completion of it, and not till then, would the stars be in the same situation from our earth that they are in at present.

The orbits of all the planets do slowly but continually change by the influence of the sun; moreover, the planets themselves accelerate and retard each other's motions, and change each other's orbits; so that the spheres perhaps are never, no, not for an instant, in any one part of the immensity of space where they have been before; and must hereby baffle every attempt to form a perfect system, or to tell the precise order of their continual change.

The obliquity of the ecliptic to the equinoctial has been found to decrease gradually from the times of the earliest observations; hence the seasons on our earth become less and less diverse. It is thought also that the mutual attractions of all the planets have a tendency to bring their orbits to a coincidence: but this change is too small to become sensible in many ages.

12. *Refraction of Light.*] From what has hitherto been advanced respecting light and shadow on our earth, or day and night, it should seem that they are equally distributed over all its parts; but it is to be observed that the measure of light is the greater, exclusively of what we derive from the firmament in the night. When the sun is below our horizon, its rays, by being refracted by our atmosphere, afford us the crepuscle, or twilight: and from the same cause it actually appears sooner in the morning, and later in the evening, than it really is above the horizon; from this cause also the sun and the full moon, when on the horizon, do not appear perfectly circular, their vertical diameters seeming rather less than their horizontal ones: they also appear larger to the naked eye than when they are more elevated; but this seems to be an optical deception.

When these orbs are on the horizon, they appear to be farther distant; and if they are seen under the same angle, or of the same real magnitude, we naturally think them larger. A large ball on a lofty spire has but a diminutive appearance, compared with what it would have, if lying on the ground at the same distance from the eye. In the former instance its distance seems less to us than it really is; in the latter, being accustomed to measure the ground in walking, &c. we make a proper allowance for the distance, and form a tolerable precise idea of its real magnitude; and if an observer look steadfastly on the rising or setting sun, till he lose sight of the intervening landscape, which gives the idea of superior distance, he may find the luminary appear not larger than it does when on his meridian.

13. *Motion of Light.*] Besides the changes already mentioned, real or imaginary, or, in other words, mechanical or optical, in the order of the spheres, there has been another discovered, which is rather a minute one: this give a small apparent motion to the fixed stars; it

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is thought to be occasioned by the aberration of their light, and to evince to a demonstration the annual motion of the earth.

The times wherein the Jupiter's satellites perform their orbits round that planet are known, and the instant when any of them will be eclipsed is calculated; but it is constantly found that the eclipse happens about 16 minutes sooner, when our earth is in that part of its orbit nearest to the eclipse, than when it is on the opposite side; and it is hence inferred that light takes 8 minutes in coming from the sun to the earth: a distance of 95,000,000 miles.

14. *Aberration of the Stars.*] The orbit of the earth is so small a circuit in comparison with the distance of the stars, that their appearance is the same from all the different parts of it. But on some very accurate observations on the parallax of certain stars in the zenith, they seemed to vary in their situation; and this change of place has been inferred to the motion of light. A star coming to the zenith at six in the morning is found, in this part of the world, to appear farther distant from the north pole than when it arrives there at six in the evening; these are the hours of their greatest apparent distance north and south. When they pass the zenith in the day, they appear to move southward from day to day, till reaching the zenith at six in the morning, they become stationary at their greatest distance south: and after this, from night to night, they seem to move northward, till coming on the zenith at six in the evening, they become for a little while stationary again, at their greatest distance north. A nutation in the earth's axis, it is observed, would not produce these appearances, as the change in the different stars is not equal. The small apparent aberration of the stars is attributed to, or is called the aberration of their light. It is said, if light were instantaneous, we should always see the stars where they really are; but, the motion of light being progressive, they sometimes appear to us, as we move along in our orbit, in a situation rather different.

The simple observer will readily comprehend, that, if water were to drop from a vessel, passing at a considerable height over his head, its descent not being instantaneous, but progressive, it would not fall on his head when the vessel was directly over him, but some time after its passing his vertex: in like manner, if a star, shedding its light were to move along, the impression of its rays would continually be received in the eye, when it had passed the place whence the rays issued, the star would always appear less advanced on its way than it really was, unless the motion were directly to or from us. But how these effects could take place, while the star was at rest, and we only in motion, is not so easily conceived; perhaps we shall here have to make a stand, with whatever diffidence, and to doubt the precision of this doctrine of the astronomers.

It is not pleasant in our investigations to meddle with the instruments of death; yet as these have been used in the illustration of the laws of projectiles, we may avail ourselves of them, in an imaginary way, and we shall thus, perhaps, see in an easy example, a sufficient cause of objec-

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tion to, if not a pretty clear refutation of the doctrine of the aberration of light. If, then, a vessel were passing a fort with velocity, and a ball were fired from the vessel to the fort; the ball would not strike the fort till the vessel had left the place from which the ball set out: If the ship were instantly stopt on the ball's reaching the fort, the line which the ball had described would not connect the two objects; but if a ball were fired at the vessel from the fort, and the vessel were instantly stopt, the line which the ball had described would connect the ship and fort: in like manner, as the stream of light is continual from the stars, perhaps their rays always, when not refracted in their course, give us exact information of their place. Perhaps it is owing entirely to refraction that the stars appear to vary in their situations, as has been described. To tell how the refraction is produced, and why it is regular, may be an insuperable difficulty; but, as it is generally expected, though not a reasonable requisition, that in attempting to set aside one hypothesis, another should be offered, it may be remarked, in the first place, that the effect is so small, that it may seem to require only a small cause to produce it.

On our being informed that the earth turns round, and that it moves in an orbit, a question very naturally presents itself. How is it that the atmosphere, which encompasses the earth, and is not fastened to it, does not, by its being stationary, the earth turning through it in its diurnal motion, produce the effect of a constant easterly wind? or how is it that the foremost part of the earth's surface, in its orbit, is not almost stripped of its atmosphere, and the aerial fluid drawn out, on the opposite side, like the tail of a comet? On learning that the atmosphere, by its gravitation, is attached to the earth, and is carried along by it, like the sea and other fluids, we perhaps may still retain the plausible, and, it is possible, the true idea, that the uppermost and finest parts of the atmosphere may, in a very small degree, be affected in this way; perhaps we must suppose so, if we at all doubt of the great intermundane spaces being vacua, if we admit in them the presence even of a fluid of light, or of ether.

Now the meridian on our earth, on which it is six of the morning, is the forepart of the earth in its orbit, and that on which it is six of the evening is the afterpart; and if the atmosphere be deeper over the afterpart of the earth than over the forepart, must not we in this high northern latitude, on looking up at our zenith, at six in the morning, have a rather deeper atmosphere northward than we have southward? And must not this, by refraction, throw a vertical star rather southward? and if so, must not the effect, on the same principles, be exactly the reverse in the evening? This, so small a variation, it must be acknowledged, if it do exist, must be influenced by the changes of heat and cold as well as by the aerial tides, which we should expect twice in the day, to increase and diminish the aberration of the star in our zenith, if indeed it, after all, be produced by refraction.

15. *Moon, its size, phases, seasons, &c.*] The moon is called a satellite or attendant of the earth, going round it, from change to change, in 29 days, 12 hours, 44 minutes, and 3 seconds and a twentieth, which is called a lunation: but it completes its orbit from one point in the heavens,

vens, or from any given fixed star to the same star or point again, in 27 days, 7 hours, 43 minutes, and 4 seconds, moving about 2290 miles every hour. The moon's diameter is 2180 miles, and its distance from the earth's centre 240,000.

It is full moon when (the earth being between the sun and the moon) we see all the enlightened part of it; change, when (the moon being between us and the sun) its enlightened part is turned from us; and half moon when (the moon being in the quadratures, as astronomers call it, or half-way between the two other positions) we see but half the enlightened part.

Those parts of the moon's orbit, where it is at change or conjunction, and at full or opposition, are called the Syzygies.

As the moon reflects the light of the sun to the earth, so, if the moon have its inhabitants, our earth, in like manner, acts as a moon to them. And so great a light does it throw on the satellite, that it may be seen from the earth with the naked eye. There are few but who have observed of the moon, a while before and after the change, when we can see it only a little while in the morning or evening, that we then see its whole body distinctly. One side of it appears as a bright slender crescent; but the principal part of it seems of a dark or dull, and scarcely distinct hue. The bright part of it is as the day-light of the moon; the dark part as the moon-shine reflected from the earth. We are told, that in Italy and other parts, where the air is clear, that the dark moon may be seen, or the moon at the change, when it rises or sets with the sun. If this be the case, it must be from the light of the sun reflected on it from the earth, which is at that time a full moon, affording 13 times as much light as we receive from the full moon. As the inhabitants of the moon, if such there be, have a full moon when we have change, so they must have a waxing when we have a waning moon; or, in a word, all their lunar seasons exactly the reverse of ours.

If the moon be peopled, the lot of its inhabitants must, in some respects, be different from ours. The moon turns only once round on its axis while it performs its orbit round the earth: one side of it is consequently always turned towards our earth, and receives successively two weeks of moonlight from our earth, and two weeks of sun; the other side, is two weeks in continual darkness, and two weeks in constant day. Their day and night then is a month in length, and they experience scarcely any diversity of seasons as we do, the axis of the moon being almost perpendicular to the ecliptic.

As the moon does not so sensibly decline from its equator as to produce a change of seasons, it has been supposed that the lunarians may measure their year, by observing when either of the poles of our earth begins to be enlightened and the other to disappear, which is always at our equinoxes; they being conveniently situated for observing great tracks about our poles, which are entirely unknown to us; that the year is of the same absolute length both to the earth and moon, though very different as to the number of days; we having 365 days, while the lunarians have only 12; and that the moon's inhabitants, on the side next the earth, may as easily find the longitude of their places

as we can find the latitude of ours; for the earth keeping constantly, or very nearly so, over one meridian of the moon, the east or west distance of places from that meridian are as easily found as we can find our distance from the equator by the altitude of our celestial poles.

The moon is sufficiently near us to give us an opportunity of observing, with the naked eye, inequalities on its surface. By help of the telescope, they have been distinctly ascertained, and considered as mountains and cavities, as land and water; astronomers have even given them geographical names, after the islands, countries, and seas on our earth, though without regard to situation or figure; and some have called them after the philosophers. From the shadows projected on the surface of the moon, from its eminences or mountains, astronomers also calculated their heights; they were concluded to be about nine miles high. From the clear appearance of the moon, it was imagined there were neither clouds nor vapours about it, from whence rain might proceed; that there was consequently a series of fine serene weather there. It was even thought probable that the moon had not even an atmosphere, because the planets and stars which were seen near it, had not their light refracted, as it is in passing through our atmosphere. Later observations however appear to have been more accurate. The astronomer Herschell, whose telescope magnifies six thousand five hundred times, has reduced its highest mountains, a few excepted, by his calculations, to about half a mile. It seems he has discovered three volcanos in the moon: the principal one, at the time of observation, was in a part of its disk not then illuminated; he estimated its diameter at about three miles. It ejected great quantities of smoke and lava; and its light was so considerable, as to illuminate the hills in its vicinity. The next lunation he repeated his observations with the greatest attention, but saw nothing of it: the other two seemed either to have been lately extinguished, or to threaten an immediate eruption. Streaks of light have also been seen to dart instantaneously from different places in the moon at the time of total darkness, during a solar eclipse, which have been taken for lightning: all which circumstances seem to shew the existence of a lunar atmosphere, and a remarkable similitude between the moon and our earth.

16. *Solar and Lunar Eclipses.*] Every planet and satellite is illuminated by the sun; and casts a shadow towards that point of the heavens which is opposite to the sun.

An eclipse of the moon, is when the earth, being in a direct line between the sun and moon (fig. 30) hinders the light of the sun from falling upon and being reflected by the moon. If the light of the sun be kept off from the whole body of the moon, it is a total eclipse: if from a part only, it is a partial one.

An eclipse of the sun, is when the moon, being in a right line between the sun and the earth, hinders the light of the sun from coming to us. If the moon hide from us the whole body of the sun, it is a total eclipse; if not, it is a partial one: when the moon changes at its greatest distance from the earth; its dark shadow terminates in a point before it reaches the earth, and to the people immediately under it the sun's edge appears like a luminous ring all round the body of the moon;

moon: this is called an annular eclipse. At the time of a total eclipse the darkness is intense, the stars appear, and the brute creation, as well as superstitious observers, seem struck with terror; but its duration is generally but for a moment, and, at the utmost, continues little more than three minutes of time.

Besides the dark shadow of the moon, there is another fainter one, which encompasses it, called the Penumbra; and which is cast with different degrees of shade upon those parts of the earth which are only partially deprived of the sun's rays.

The greatest dark shadow of the moon covers only a spot on the earth's surface about 180 English miles broad; but the penumbra, or partial shadow, may cover a circular space 4900 miles in diameter, and if it fall obliquely on our globe, it stretches out into an elliptical form.

The eclipse always begins on the eastern side of the moon, and on the western side of the sun.

A Digit is the 12th part of the sun's or moon's diameter, and is a term often used in speaking of eclipses. The Disk of the sun or moon is its round face, which, on account of the great distance of the object, appears flat. The edge or border of the disk is called the limb.

An Occultation is when a star or planet is hid from our sight by the interposition of the moon or a planet. The Immersion of a heavenly body is the time when an eclipse begins; its emerſion is when it begins to reappear.

In fig. 31, let S represent the sun, E the earth, and M the moon, in the different parts of its orbit. Here the balls P H, in the outer circle, represent the different phases, or appearances of the moon, in the different parts of its orbit, to the inhabitants of the earth.

All the phenomena of the moon's phases and eclipses may be prettily exhibited in an easy experiment, with a candle and ball, fig. 32. Let S be a candle, representing the sun; B a ball, representing the moon: let the head of the observer be considered as the situation of the earth. If the observer carry M round his head in an orbit, and keeping his eye on it, mark out the different phases in the different parts of its orbit, at C it will appear a crescent; at F full moon; at H half moon; and at D dark moon, or change. If his eye, the ball, and candle, be all on a level, when M is at D, S will be eclipsed by it from his view: and when M is at F, M will be eclipsed in the shadow of his head. Hence we may see that lunar eclipses can only happen at the time of full; and solar ones only at the change.

If the moon moved in the same plane or level with the earth, we should have an eclipse every full and change; but the plane of its orbit is oblique to that of the earth, and crosses it at an angle of five degrees and one-third. The points of their intersection are called the nodes of the moon's orbit.

The Ascending Node is the northern intersection of the moon's orbit with the ecliptic: it is called the dragon's head, and is marked thus by astronomers ☊; the descending node, or dragon's tail, is the southern intersection, and is marked thus, ☋.

The nodes change their places every lunation, and it is only when they

they happen to be in a right line with the sun and earth that the solar and lunar eclipses take place.

If the line of the nodes were always carried parallel to itself round the sun, there would be just half a year between the conjunctions of the sun and nodes. But as the nodes shift towards the west, backwards, or contrary to the earth's annual motion, about nineteen degrees and one-third in a year, the same node will come round to the sun about 19 days sooner every year than upon the preceding one: consequently, from the time that the ascending nodes passes by the sun, as seen from the earth, it is only 173 days, not half a year, till the descending nodes passes: therefore, in whatever time of the year we have eclipses of the luminaries about either node, we may expect in 173 days to have eclipses about the other node. The nodes shifting through all the signs and degrees of the ecliptic in 18 years 225 days, there would always be a regular period of eclipses, if any complete number of lunations were finished without a fraction. This never happens; but in 223 mean lunations, or 18 years and 10 or 11 days after the sun, moon, and nodes have been once in a line of conjunction, they return so nearly to the same state again, that the same node which was in conjunction with the sun and moon at the beginning of the first of these lunations, will be within less than half a degree of a line of conjunction with the sun and moon again, when the last of these lunations is completed; and, therefore, in that time there will be a regular period of eclipses, or returns of the same eclipses, for many ages. But the falling back of the line of conjunction of the sun and moon, with respect to the line of the nodes, in any period, will in process of time wear it out, and after that it will not return again in less than 12,492 years. The eclipses of the sun, which happen about the ascending node, and begin to come in at the north pole of the earth, will go a little southerly at each return, till they go quite off the earth at the south pole; and those which happen about the descending node, and begin to come in at the south pole of the earth, will go a little northerly at each return, till at last they quite leave the earth at the north pole.

In any year the number of eclipses of both luminaries cannot be less than two, no more than seven; the most usual number is four, and it is very rare to have more than six. Eclipses of the sun are more frequent than of the moon, because the sun's ecliptic limits are greater than the moon's; yet we have more visible eclipses of the moon than of the sun, because eclipses of the moon are seen from all parts of that hemisphere of the earth which is next them, and are equally great to each of those parts; but the sun's eclipses are visible only to that small portion of the hemisphere where the moon's shadow falls.

17. *Change in the Moon's Orbit.*] While the motions of the spheres are so well understood, as to enable astronomers to describe their motions and their consequently ever-varying positions with great precision; while they calculate the periods of eclipses for ages to come, and tell us when and where they have happened from remote antiquity, with tolerable accuracy, their elements for computation are yet imperfect:

there is still a deviation in the motions of the spheres from every system of human contrivance ; and it seems that art, however ingenious, must for ever be incompetent perfectly to exhibit their exact order, or tell the end of their goings.

In the motion of the moon there is discovered a slow continual change, which is very minute, but which when discovered, seems to shew that the present order of things must come to an end. It is found that the moon now finishes its period in less time than formerly, approaching nearer and nearer to the earth, and going sooner and sooner round it. Hence, eclipses which have happened many centuries ago, appear, from the accounts in ancient history, to have fallen rather differently, both in time and place, from what the calculations from our present astronomical tables make them to have done. Thus the eclipse of the sun, predicted by Thales in Asia, to happen in the fourth year of the 48th Olympiad, 585 years before the Christian era, by calculation would appear to have come on rather later, and to have happened central through North America, the South of France, Italy, &c. but not to have reached farther than Athens, or the isles in the Ægean Sea, although it is thought that it extended to Babylon, and went down central over that city. So also the solar eclipse, mentioned by Thucydides to have happened on a summer's day in the first year of the Peloponesian war, 431 years before the Christian era, and which appears to have been central to Athens about six in the evening, causing a darkness so great that the stars appeared, and to have gone down about Jerusalem, would, by calculation from the present tables, appear to have reached no farther than the ancient Syrtes, on the African coast of the Mediterranean, above 400 miles from Athens.

18. *Libration of the Moon.*] As the motion of the moon on its axis is equable, completing one revolution in the course of a lunation, our earth would be constantly over the same meridian of the moon, were the motion of the moon round the earth also equal ; but, like the other planets, it moves in its orbit with different degrees of velocity, and this produces what is called the libration of the moon, or the successive exhibition and retreat of its opposite limbs or margins. When the motion of the moon is quickest, we see rather more of its western side ; when slowest, a little more of its eastern side is presented to us ; moreover, the axis of the moon being a little inclined to its orbit, and preserving its parallelism round the earth, we sometimes see one and sometimes another pole of the moon, which gives it the appearance of a wavering or vacillatory motion.

19. *Production of Tides, &c.*] While it is by attraction that the earth remains a solid ball, when otherwise its parts would be thrown off from its centre by the rotary motion which it has on its axis ; and while it is kept in its orbit by the centripetal force, when otherwise the centrifugal would throw it off in a right line through the immensity of space ; the water in its vallies, or the sea, and the atmosphere that surrounds it, being fluids, receive from these two forces particular impressions, of which the firmer parts of it are not susceptible. Of these the most remarkable are the tides, which, while they are produced

duced in the atmosphere as well as in the water, appear to us only in the latter.

If we fix a string to the side of a flexible circular hoop, and thereby swing it round in a circle (fig. 32) we readily conceive how the part next the hand would draw out or swell by the drawing of the string; how the opposite part would fly off or swell, by the centrifugal force, it being least drawn in; how the intervening parts of the hoop would hereby be depressed or flattened. So it is with the ocean; that part of it which is immediately under the sun, is raised by its attraction up into a swell; that part of it which lies on the opposite side of the earth, is thrown up into a similar swell, by the motion of the earth in its orbit, or by the centrifugal force. The moon is so near the earth (two hundred and forty thousand miles at a medium) in comparison of the sun (near one hundred millions of miles) that the moon's attraction and the accompanying centrifugal force, are to those of the sun as ten are to three. If we consider then the lunar tides as the principal ones, we shall find them influenced by the solar tides, as follows: At the full and change, the lunar tides ten, shall be increased three, by the conjunction of the solar ones; and a power of thirteen shall influence the sea, and produce spring tides; but at the quarters of the moon, or at the time of half-moon, the two luminaries counter-acting each other's influence on the waters, the sun's power of three shall be taken from the moon's of ten, and leave only seven operating upon the sea; and hence neap tides shall consequently take place.

In open seas, the tides rise but to very small heights, in proportion to what they do in wide-mouthed rivers, opening in the direction of the stream of the tide; as the winds, when gentle on the open plain, are very rapid and forcible when compressed into the defiles of the mountains.

The tides are so retarded in their passage thro' different shoals and channels, and otherwise so variously affected by striking against capes and headlands, that to different places they happen at all distances of the moon from the meridian. The tide, for instance, propagated by the moon in the German ocean, takes twelve hours in reaching London bridge, by which time a new tide is raised in the ocean.

20. *Earth an oblate Spheroid.*] If, instead of swinging the flexible hoop round in a circle, as in the former experiment, we suppose it whirled round with velocity on one of its sides, as a centre, as in fig. 33, we may easily conceive how this side and the side directly opposite, would become flat or depressed, by the intervening parts of the hoop swelling out from the centre, as it is whirled round. So is it with the sea: by the centrifugal force from the turning round of the earth on its axis, the waters of the ocean are thrown up many miles higher at the equator than they are at the poles. We might hence be apprehensive that the countries within the tropics would be deluged with water; but the fact is, the solid part of the earth itself has a corresponding shape, being rather flat at the poles, and highest at the equator. The land and water then of our globe is not an exact sphere, but an oblate spheroid. A prolate spheroid is highest at the poles; a lemon may be considered as a figure of this description: an orange as a spheroid of the oblate kind.

It is the tendency of gravitation or attraction, to draw the waters down to the poles, and to lay even those countries that we live in, some miles under water; but this influence is nicely counteracted by the centrifugal force, which perpetually keeps it heaved up to the equator.

The exact figure of the earth was undetermined, and there were different notions respecting it, till, in the early part of this century, two companies of mathematicians were dispatched from France, one to measure the length of a degree on the meridian in Lapland, the other at the equator; and a degree of latitude was found something shorter at the equator than it proved to be on the flatter parts of the earth near the pole; our globe was found to be an oblate spheroid, and very nearly of the same proportion as Isaac Newton had computed it to be, from his knowledge of the laws of the creation: the figure of our earth, however, differs so little from that of a sphere, that it may be considered as such in the common geographical computations, without any sensible error.

It is generally asserted that bodies near the poles are heavier than those towards the equator; because they are nearer the earth's centre, and because their centrifugal force is less, on account of their diurnal motion being slower; that, for both these reasons, bodies carried from the poles toward the equator gradually lose their weight. Experiments prove, that a pendulum, which vibrates seconds near the poles, vibrates slower near the equator; this favours the idea of its being lighter, or less attracted there. To make it oscillate in the same time, it is found necessary to diminish its length. It is even said, that if the earth turned on its axis in 84 minutes 43 seconds, the centrifugal force would be equal to the power of gravity at the equator; and all bodies there would entirely lose their weight; that if the earth revolved quicker, they would all fly off and leave it.

Although these doctrines be established on the researches of very diligent and accurate astronomers and philosophers, and it therefore may seem to require presumption or confidence in superficial observers in any way to oppose them; yet, may we not very naturally enquire, if gravitation be unequally distributed on the surface of the earth, whether the people at the equator are not capable of carrying greater burdens, of leaping farther, of walking lighter, &c. or whether the atmosphere itself, being rendered lighter, and their specific gravity in the aerial fluid being hereby increased, those extraordinary powers are hereby reduced, as they do not seem to exceed the little Greenlander in strength and agility.

As to the vibrations of pendulums being slower, may we not doubt the certainty of such proofs? At the equator we may expect the pendulum to move slower, from its being lengthened by the superior heat: this objection being obviated by the remark, that the cold on the mountains at the equator is intense; may we not say, on the supposition of the air's being lighter here than at the poles, that the vibrations ought to be equally quick, seeing that the densest metal and a feather fall with equal velocity in vacuo.

Besides, if the weight of bodies be not even increased at the equator, by having the whole attractive force of the earth acting on them
more

more directly downwards, in order to counteract the centrifugal force, what prevents the waters of the sea, when raised to their present height, if they have hereby become lighter, from rising double the height? the centrifugal force still increasing, what prevents them from still becoming lighter and lighter, and rising higher and higher, till they are thrown quite off from the surface of the earth?

It may be observed that if the direction of the line of the plummet were directly towards the earth's centre, it would be oblique to the horizon in all parts except at the poles and the equator, and a degree of latitude would be shorter in the polar regions than near the equator: but it should seem that the centrifugal force, by acting upon the hanging weight, must throw it from such direction, and keep it perpendicular to the horizon, hereby making the degrees longer in the polar parts of the earth. On the same principles, when we seem to erect upright bodies, suppose pillars, do we not always by direction of the plummet cause them to lean from the equator, and hereby unknowingly counteract the centrifugal force? Do we not, in fact, insensibly lean towards the polar regions, in our own bodies, as a man or a horse, walking round a circle, naturally leans towards the centre?

Harvest Moon, &c.] It is generally believed that the moon rises about 50 minutes later every day than on the preceding: but this is true only with regard to places on the equator. In places of considerable latitude, there is a remarkable difference, and this is especially noticeable in harvest, when the full moon rises very soon after sun-set for several evenings together. At the polar circles, where the mild season is of very short duration, the autumnal moon rises at sun-set from the first to the third quarter: and at the poles, where the sun is for half a year absent, the winter full moons shine constantly without setting from the first to the third quarter.

All these phenomena are owing to the different angles made by the horizon, and different parts of the moon's orbit. The moon's orbit is nearly coincident with the ecliptic. In northern latitudes, the smallest angle made by the ecliptic and horizon, is when Aries rises, at which time Libra sets; the greatest when Libra rises, and Aries sets. On the parallel of London, as much of the ecliptic rises about Pisces and Aries in two hours as the moon goes through in six days; and therefore, whilst the moon is in these signs, it differs but two hours in rising for six days together; it is about 20 minutes later every day or night than on the preceding, at a mean rate. But in fourteen days afterwards, the moon comes to the opposite signs Virgo and Libra, and then differs almost four times as much in rising, being about 1 hour 15 minutes later every day or night than it was the preceding one.

As the moon can never be full but when it is opposite to the sun, and the sun is never in Virgo and Libra but in our autumnal months, the moon is never full in the opposite signs, Pisces and Aries, but in these two months: and therefore we can have only two full moons in the year, which rise so near the time of sun-set for a week together, as above mentioned.

The former of these is called the harvest moon, and the latter, the winter's moon.

As the moon is in Pisces and Aries every lunation, it must rise twelve times in the year in this remarkable manner. But in winter, the moon rises in these constellations at noon, when it is only a waxing moon; in winter at midnight, when it is a waning one: in both cases a half-moon; and in spring it rises in these constellations in the morning, or with the sun, which is the time of its change.

On the other side of the equator, the people have their harvest-moons as well as we; but their seasons being contrary to ours, the time of them is also reverse.

As the ecliptic and horizon become coincident every day for a moment at any place on the polar circle, one half of the ecliptic, from one solstitial point to another, rises, and the opposite half sets at the same instant: that which rises at once is 24 hours in setting, and that which sets once is 24 hours in rising. At the poles, one half of the ecliptic is always above the horizon, the other half never rises. The degree of our moonlight depends upon the opposition of the moon to the sun. From this disposition of things, the wintery parts of our earth, where the nights are long, have the greatest share of the moon's light; and in the arctic and antarctic regions of our globe, it shines without setting every second fortnight, or from the first to the third quarter, and thus diversifies the gloom of the six months night.

SECTION II.

History of Astronomy, Definitions of Circles, &c. Celestial and Terrestrial; Planetary Laws, and the Methods of investigating the Motions, Magnitudes, and Distances of the Heavenly Bodies.

21. *History of Astronomy.*] From the systematic habits imposed on us in this quarter of the earth from the earliest age, having every thing already invented and prepared for the accommodation of our artificial and distorted manner of life, we have little idea of the invention and of the strength of the reasoning faculty in uncultivated man. Immured in our narrow mansions, where we keep a sort of artificial climate, we shrink from the little irregularities of the weather, while the Indian or Ethiopian, under their respective skies, roam at large, cheerful and full of vigour. Every day affords them new adventures; they bear a relation to every thing about them, of which we have no conception. The great spectacle of creation being continually before them, they have opportunities of improving the mental faculties, of which we are deprived. The aspect of the heavens is familiar to them; the changing seasons and rolling planets they are acquainted with as they really appear, and they learn, from observation, in the open hemisphere, and along their uninterrupted horizon, useful lessons for conduct and travelling; while we, having every thing pointed out to us, see only thro' the eyes of others, are amused with their discoveries, doctrines, and theories, but know more of instruments, maps, and diagrams, and heavens upon paper and artificial spheres, than of the firmament about

us;

us; or rather, does it not belong exclusively to a very small number in civilized countries to know any thing further about the matter than what we may obtain from a transient peep from our windows?

Astronomy seems to have engaged the attention of mankind in the simplest ages and from the most remote antiquity. The antediluvians are said to have had considerable skill therein. The Chinese appear to have made astronomical observations soon after the flood; their skill has been attributed to the instructions received from Noah, supposed to be the Fohi of the Chinese; and Confucius, who lived 551 years before the Christian era, has recorded many eclipses. The Japanese, Siamese, and the inhabitants of the Mogul's empire have also, from time immemorial, been acquainted with astronomy; that of the Indians agreeing with the most modern discoveries of the decrease of the obliquity of the ecliptic, of the acceleration of the motion of the equinoctial points, &c. The Druids were skilled in this science; and the Gauls, in general, able sailors in consequence. It appears also that the Mexicans were not unacquainted with astronomy, and that they made use of intercalary days to bring the solar and civil years to an equality: but with this difference in regard to the method established by Julius Cæsar in the Roman calendar, that they did not interpose a day every four years, but thirteen days every fifty-two years, which produces the same regulation of time.

The Chaldeans and Egyptians were noted, in antiquity, for their skill in astronomy; their countries, on account of the general purity or clearness of the air, were exceedingly favourable to astronomical observations. In those warm climates, where the sky is generally serene, and where it is the practice, till this day, to sleep on the tops of houses, it should seem the people, particularly the shepherds watching their flocks by night, would be naturally led to a contemplation of the firmament; these would soon discern that the innumerable multitude of stars observed the same course as the sun: if this shining orb, in the splendor of light, performed its course from east to west, while it afforded to the world the advantages of day, the stars also, and the moon, glided along in parallel or coinciding circuits, during the cool refreshing night season, one star only seemed to keep its place, and to be as a centre of revolution to all the other luminaries; and this orb they called the polar star, or pole. When these observations had been made on the celestial bodies in general, and the aspect of the heavens had become somewhat familiar, they could not but observe that some of the luminaries appeared to change their relative situation in the heavens; particularly, the sun and moon appeared to be constantly overtaken and left behind by the stars, as they all seemed to move along together round the pole and our earth; sometimes to approach towards the pole, then to recede from it, which evidently produced the seasons of the year, and which gave them the opportunity, in the different seasons, of becoming acquainted with all the visible stars in the northern, and most of those in the southern hemisphere, in the course of one revolving year.

22. *Origin of the Zodiac, Constellations, &c.*] That space round the heavens wherein they saw the moon and planets in their various motions

tions and appearances, they considered as a broad circle or belt; and they very ingeniously divided it into 12 equal portions, which they called houses. During the space of one revolving year, this circle seemed to wheel 366 times about, and the sun to complete 365 daily courses; hence, the circle continually gaining upon the luminary, the sun was said to enter, possess, and leave the several houses successively. This circle is called the Zodiac, from a Greek word implying an animal.

Those parts of the circle the sun seemed to possess in the spring, when the flocks and herds are increased by the fecundity of the season, were called the houses of, 1st, Aries, or the ram. 2d, Taurus, or the bull. 3d, Gemini, or the twins, from the goat's frequently bringing forth twin kids; these were changed afterwards into the twin brothers, Castor and Pollux: the other signs of the zodiac were successively. 4th, The Crab, denoting the retrograde motion of the sun in midsummer. 5th, The Lion, expressive of the intense heat of summer. 6th, The Virgin, with ears of corn, denoting the harvest. 7th, The Balance, shewing the equality of day and night in autumn. 8th, The malignant or venomous Scorpion, representing the diseases at the fall of the leaf. 9th, The Archer, signified the hunting season. 10th, The Goat, that climbs the craggy mountain, was meant to shew that the sun now mounted the zodiac. 11th, The Waterman, representing the setting-in of the rain. And 12th, The Fishes, shewed the fishing season.

Some have thought Josephus partial to the patriarch, in accounting Abraham the first introducer of astronomy among the Egyptians; they have imagined that Cham and his family brought with them the astronomical design of the zodiac, on their first settling in the land of Egypt. The lower parts of this country are, on our autumn, annually laid under water by the overflowing of the Nile; this greatly enriches the soil, but at the same time sweeps away the land-marks of the husbandman: to remedy this inconvenience, recourse was necessarily had to lines and angles, and as the skilful pilot avoids the hidden rocks and shoals, by keeping distant objects in certain bearings with each other to his eye as he traverses the smooth and uniform surface of the water, so by similar helps had the Egyptian his particular lot of ground again returned to him when the flood had left the plains, under one continued appearance of slime and mud.

Some account this the origin of geometry with the antients; certainly it appears this circumstance would tend vastly to the fixing of that foundation of science among the ingenious and assiduous Egyptians.

For the security of their families, their cattle, and conveniences on the higher grounds, it was necessary for the Egyptians to watch with attention the precise time of the coming of the flood. Astronomy was not, in those days, in that high cultivation in which we have it now; the civil or political year was not yet established; the divisions of the zodiac not sufficiently minute; the general and obvious one of the seasons still less so.

In the summer, annually, a short time preceding the inundation, a
star

star of the first magnitude appeared in the east, a little before the rising of the sun. It seems probable that the Egyptians for a while kept with anxiety the watches of the night, for fear of too sudden a deluge of waters; but this brilliant star annually making its appearance a little before the inundation took place, it afterwards sufficed to await the coming of the star. They gave it the name of Thaut or Thot, the dog; and Anubis, the barker or monitor.

It should seem to require an effort in the imagination to see figures of animals, &c. in the firmament; but the ancients either imagined they did, or resolved they would, discover things of this sort in the arrangement of the stars: and accordingly, in their different houses in the zodiac, and in the stars surrounding their bright Anubis, they saw, by help of a fertile fancy, one bright star represent the eye, another the termination of a tail or horn, these a body, those a limb, &c. till all their signs were determinately fixed; the shepherds still conceiving the figures of things in the firmament, the poets embellished the illusion, with the fictions of mythology, till the heaven were, as it were, filled with these imaginary creatures, and these were increased in after-ages, and served astronomers in their accounts of the starry heavens, as the present divisions of the earth help geographers in the description of the globe.

The overflowing of the Nile was also preceded by the north wind; by the hawk stretching her wings towards the south; the decrease of the waters by the south wind, and the coming of the whoop, a bird from Nubia, to feed on the insects, &c. left by the flood. All these were noticed by the Egyptians, who appointed a company of skilful observers, for the farther advancement of knowledge; these, with great industry, investigated the properties of natural bodies, studied the geometrical affections of lines, angles, &c. they made their observations from a labyrinth or tower, appropriated to that purpose, and in it recorded their improvements, as well as they could, by emblematical drawings or hieroglyphics, when they had not yet arrived at the invention of letters.

The number of constellations in the northern hemisphere is 36; in the southern 32; and in the zodiac 12. Those stars which are not included in the constellations, are called unformed stars; those clusters of stars which are so distant as not to be distinctly seen, are, from their cloudy appearance, comprized under the name of *nebulae*; and that light-coloured irregular circle or band which encompasses the heavens, and is distinguishable from the ethereal blue by its brilliancy: that shining zone which owes its splendor to the innumerable stars of which it is formed, and which passes through many of the constellations in its ample range, is called the Galaxy, the *via lactea*, or the milky way.

23. *Definitions of Circles, &c. stationary.*] Astronomers have considered the starry heavens as a sphere or concave, with our earth in the centre: this is the appearance they make to our senses. They have divided the terrestrial and celestial spheres by great and less circles. Great circles are those which divide either the celestial or terrestrial spheres

spheres into two equal parts : less circles are those which divide the sphere into two unequal parts.

The axis of the earth is an imaginary straight line passing through its centre : its points at the earth's surface are the north and south poles.

If, at the time of the equinoxes, a ray directly pointed from the centre of the sun towards that of the earth, be supposed, like a pencil, to describe a circle on the surface of our globe, as it turns round on its axis ; this circle will divide the earth into the northern and southern hemispheres, and will be the equinoctial line.

If circles be supposed to be described in like manner, at the time of the solstices, or at midsummer and midwinter ; these will be the Tropics, at about twenty-three degrees and a half from the equinoctial line.

When the sun is thus directly over a tropic, as it illumines one half of the globe at once, its rays extend twenty-three degrees and a half beyond one of the poles, and fall so far short of reaching the other. These extreme boundaries of light and darkness, on the north and on the south, as they are swept round the poles in one revolution of the earth on its axis, mark out the polar circles on the surface of the globe. The polar circles are the Arctic on the north, and the Antarctic on the south. The tropics are that of Capricorn on the south, and that of Cancer on the north ; they are all so named from constellations that are over them in the heavens.

These circles divide the surface of the earth into five zones. The tracks at the two poles are the Frozen zones ; those between the polar circles and the tropics, the Temperate ; and that which extends from tropic to tropic, is the Torrid or burning zone.

The starry heavens that surround us appear to form one vast concave. If these circles be supposed to be produced to the starry heavens, or swept round the concave, they will there mark out the celestial polar circles, tropics, and equinoctial.

When the sun is over any of these circles on the earth, it will appear to us in the corresponding circle in the heavens.

As our earth, in the course of a year, moves round the sun in an orbit or ecliptic, the plane of which is oblique to that of the equinoctial, the sun in that time seems to us to move in a contrary direction, in an orbit or ecliptic round the heavens, of the same obliquity from tropic to tropic, intersecting the equinoctial in two opposite points, and forming an angle with it equal to twenty-three degrees twenty-eight minutes ; the sun's greatest declination.

All the planets move nearly in the direction of the ecliptic ; and that space on each side of it, which bounds their utmost deviations, is called the zodiac. The Zodiac is a broad circle or belt in the starry heavens ; it is about sixteen degrees in breadth. The Ecliptic is a line which equally divides it in two all round.

The zodiac is divided into twelve equal parts, called signs or constellations ; each sign contains thirty degrees ; and these signs are named and noted in the following manner :—

Aries.

Aries.	Taurus.	Gemini.	Cancer.	Leo.	Virgo.
♈	♉	♊	♋	♌	♍
Libra.	Scorpio.	Sagittarius.	Capricornus.	Aquarius.	Pisces.
♎	♏	♐	♑	♒	♓

The former fix are called northern, and the latter southern signs; because the former possess that half of the ecliptic which lies to the northward of the equinoctial; and the latter that which lies to the southward. The northern are our summer signs; the southern our winter ones.

The planets within the earth's orbit are called the inferior; those without it the superior planets. When at their greatest distance from the sun, they are said to be in their Aphelion; when nearest to the sun, in their Perihelion; these two points of distance are called the Apfides; and a line joining the points is called the Line of the Apfides. Planets, when farthest from the earth, are said to be in their Apogee; when nearest to it, in their Perigee.

The apparent places of the planets are considerably altered by the earth's change of place, as well as by their own motions: the geocentric place of a planet is that position in which it seems to be as seen from the earth; the Heliocentric place is that in which it would appear to a spectator placed in the sun. From the motion of the earth, the superior planets sometimes appear to us to move in antecedence, or contrary to the order of the signs of the zodiac; the inferior planets would have that appearance, if our earth were at rest in its orbit. To an observer at the sun, the planets would all appear to move in the order of the signs, or in consequence: a planet so moving is said to be direct; when it seems to move the contrary way, it is said to be retrograde.

If we suppose a line extended from pole to pole on our earth, cutting the equator at right angles, this will be a meridian; for all the people who live on this line would have noon, or any other part of the day, at one and the same time.

In the heavens also meridians cut the equinoctial at right angles, and terminate in points opposite to the poles of the world.

In our northern latitudes the heavenly bodies are said to south, or culminate, when they come to the meridian.

The Nodes of a planet are the two points where its orbit intersects the plane of the ecliptic.

The Equinoxes are the two points where the ecliptic cuts the equator; they are so called, because the days and nights are of equal length when the sun is in either of these situations.

The Solstices are the two points where the ecliptic touches the tropics; when the sun is in these situations, which it is at midsummer and midwinter, its declinations seem for a while to be stationary or fixed.

These points are the cardinal points of the ecliptic, and the first points of the signs Aries, Cancer, Libra, and Capricorn.

The Equinoxes, or equinoctial points, are those of Aries and Libra; the solstices, or solstitial points, are those of Cancer and Capricorn. The meridians that pass thro' these four points, meeting at the poles, intersect each the other at right angles: these two great circles are called the Equinoctial and Solstitial Colures.

The

The Latitude of a place on our earth is its distance north or south from the equinoctial line : the longitude its distance east or west from a meridian. Circles are divided, whether great or small, into three hundred and sixty parts, called Degrees ; the greatest longitude of a place, therefore, can only be one hundred and eighty ; the utmost latitude ninety degrees.

The meridian for measuring longitude from on our earth, is not determinate or established ; and geographers generally fix upon that one on which the metropolis of their own nation stands.

In England, that of London, or rather of Greenwich Observatory ; in France, that of Paris is the first meridian ; but before these partial assumptions took place, Faro, one of the western isles, was supposed to be the very outside limit of the habitable world, and its meridian was wisely made, by common consent, the commencement of eastern longitude. Before the discovery of America, western longitude was disregarded or unknown.

The Right Ascension of any heavenly object is its distance from that meridian which passes through the first point of Aries ; the Declination is its distance from the equinoctial.

If great circles be imagined to cut the ecliptic at right angles, these will intersect each other in two opposite points of the heavens. These points are the Poles of the Ecliptic, at nearly twenty-three degrees and a half from the poles of the world ; and the circles are called Circles of Longitude in the heavens.

The Latitude of any heavenly object is its distance north or south from the ecliptic ; the Longitude its distance from that circle of longitude which passes through the first point of Aries.

The latitudes of the fixed stars remain invariably the same, but their longitude increases at the slow rate of one degree in about seventy-two years : this is not a motion of the fixed stars, but of the equinoctial points, from which we reckon the stars longitude, and which move backward, or recede westward at that rate ; this is the precession of the equinoxes, which requires about 25,920 years for one revolution thro' the twelve signs ; in this time the pole of the earth, in pointing to the heavens, would describe a circuit round the pole of the ecliptic.

24. *Definitions of Circles, &c. varying.*] Besides the circles already mentioned, which are in some measure fixed and determinate, there are others that vary according to the place of the observer.

The Zenith is that point in the heavens directly over head. The Nadir is that point directly opposite the zenith ; the zenith and nadir are the two poles of the horizon.

The Sensible Horizon is that apparent circle in the heavens on a level with the eye, which limits or bounds the view of the spectator on the sea, or on an extended plain. The eye of the spectator is the centre of his horizon. The Mathematical Horizon may be considered as coinciding with the sensible, though the centre of the earth is the centre of the mathematical horizon ; for the semi-diameter of the earth is but as a minute point, if compared with the distance of the stars.

The Altitude of an heavenly object is its distance from the horizon ; the Zenith Distance, its distance from the zenith.

The

The Meridian altitude, or Meridian zenith distance, is the altitude or zenith distance, when the object is on the meridian.

A circle round the heavens, and through the object, parallel to the horizon, is called an Almicanter, or a Parallel of altitude.

The Azimuths, or Vertical Circles, pass through the zenith and nadir, and cut the horizon at right angles.

The points where the azimuth, which coincides with the meridian, cuts the horizon, are the North and South points. The points where the azimuth, which cuts the meridian at right angles, falls upon the horizon, are the East and West points. These are the Cardinal points of the Compass. All the points of the compass may be seen in their order in fig. 25.

Although the planes of the Azimuths, which mark out the cardinal points of the compass, intersect each other at right angles, and the line of East and West does consequently in all places cross the line of North and South perpendicularly, yet it necessarily happens, from the convexity of the globe, that the line of East and West varies its direction every step we take on it, except at the Equinoctial; hence to travel on any parallel of latitude, is to go along a crooked line, as most obviously appears when we come near the poles.

The Azimuth of a celestial object, is an arc of the horizon, contained between the east or west point of the heavens, and a vertical circle passing through the centre of the object.

The Amplitude of a celestial object, is an arc of the horizon contained between the east or west point of the heavens and the centre of the object at the time of its rising and setting.

When a star or planet rises at sunset, and sets at sunrise, its rising and setting are Achronical; when it rises and sets with the sun it is Cosmical; when it emerges from the sun's rays, or appears above the horizon before the sun in a morning, its rising is heliacal; when it is so hid in the sun's beams as not to be seen above the horizon after the sun in the evening, its setting is heliacal.

Ascensional Difference is an arc of the equinoctial, contained between that point of it which rises with the sun, moon, or star, and that which comes to the meridian with them; or it is the time the sun rises or sets before or after six o'clock.

Oblique Ascension is an arc of the equinoctial contained between the first degree of Aries and that point of it which rises with the centre of the celestial object, sun, moon, or star.

25. *Positions of the Sphere.*] A parallel sphere is that position wherein the heavenly bodies appear to move parallel to the horizon. This can only happen at the poles where the equinoctial coincides with the horizon; one of the poles with the zenith, and the other with the nadir, fig. 26.

A Right Sphere is that wherein the heavenly bodies appear to rise direct from the horizon, and to fall directly upon it when they set. This is common to all places situated under the equinoctial, where the poles are in the horizon; and the equinoctial passes through the zenith and nadir, fig. 27

An Oblique Sphere is that where all the heavenly bodies appear to move obliquely to the horizon. This is common to all parts of the earth, except those under the poles and equator. In an oblique sphere, one of the poles seems elevated above, and the other depressed below the horizon, fig. 28.

Fig. 29 represents an artificial armillary sphere, which shews the dispositions of several of the circles already described.

26. *Ascertainment of the Latitude.*] The latitude of a place on the earth is more easily found than the longitude. It may be performed by the help of a quadrant, and addition and subtraction only, if we have a meridian line, or other certain means to know when it is twelve o'clock by the sun. By the quadrant (fig. 24.) we can find the height or altitude of any heavenly body above the horizon; if it be the sun, we hold the quadrant so that its rays shall pass through two holes or sights fixed on D S; but if any other object, we look at it through the sights along D S; the plummet and thread hanging from the angle S, marks its altitude on the arch C D. The meridian altitude of any object is its greatest altitude for that day; and when the sun is on the meridian, it is twelve o'clock by the dial. The sun's meridian altitude is its noon day altitude; and in all places north of the torrid zone, the sun is exactly south at noon, by which we may gain an idea of the other points of the compass; for if we turn our faces to the sun at noon, the north point will be exactly behind us, the west on our right hand, the east on our left.

If we take the altitude of the sun or a star on the meridian, and the sun or star be in the equinoctial, that altitude subtracted from ninety degrees, leaves the latitude of the place; but if the sun be not on the equinoctial, subtract its declination if north, or add it if south, from or to the degrees of altitude, and the remainder or sum subtracted from ninety degrees, tells the latitude. Those who have but very little acquaintance with the heavenly bodies may, by just looking about them, form some idea of the latitude of the place they may be in all over the world. If the sun be over their heads at noon, they must be within the tropics; on the contrary, if it either keeps twenty-four hours up, or never rises during that space, they are within the polar circles; even the temperature of the place alone might give them some idea of their latitude. The north or south pole is easily pointed out in the heavens; they are those points which appear as centres of revolution to the stars in their apparent diurnal motions. If our situation be on the equator, both these points or poles will be in our horizon; if we recede from the line, one of these poles will sink from our view, the other will consequently rise above the horizon, just so many degrees as we are distant from the equator. To ascertain the altitude of the pole is the same as to determine our latitude. When we turn our backs to the pole, and look towards the equator, if the heavenly bodies seem to rise on our left hand and set on our right, we are in a northern latitude, or on the northern hemisphere; but if they rise on the right and set on the left, we are in the southern.

There are no such simple and easy methods of judging of our longitude, whether it be east or west, from any given meridian, the appearance

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pearances of the heavenly bodies will generally be the same in any longitude, while we keep in one parallel of latitude.

27. *Ascertainment of the Longitude.*] All places that lie under one meridian have the same longitude, and experience at once the same hour of the day; and as the difference of time between any two places is according to the distance of their meridians from each other, so if we knew the difference of the hour in these two places at one instant of time, it would only be another name for difference of longitude; for if their difference of time be one-half, one-third, one-fourth, or any other part of twenty-four hours, i. e. of the time of one diurnal revolution, their difference of longitude, or the distance of their meridians from each other, will be one-half, one-third, one-fourth, or a similar part of three hundred and sixty degrees, i. e. of a parallel of latitude, or a circle on the earth in a direction east and west.

To find our longitude, besides finding the hour in the place where we are, we must know what hour it is at some distant place: the latter we must either have by some exact time-keeper, set to the time of the other place, or from observations of the celestial bodies; for which the eclipses of the moon and of the Jupiter's satellites are best suited, because the coming on of these eclipses is seen at the same instant of absolute time from the different parts of the earth to which they are visible, but their relative time will differ according to their difference of longitude. Now the times of these appearances in the heavens are calculated according to a certain meridian, suppose that of London; and these calculations we have in the ephemeris, or almanack; if then, we nicely attend to the time of the coming on of the eclipse, according to our distance east or west from the meridian of London, so will the hour of its appearance differ from that of the calculation; but the difference of time between any two places is, as was already remarked, only another name for their difference of longitude.

However, eclipses of the moon happen too seldom to be of much use at sea, and eclipses of the Jupiter's satellites are of no use except at land, because they are not visible without a telescope, which requires a steadiness not suited to the motion of a ship. But mariners in long voyages make use of the moon's distance from the sun, and from some stars in the zodiac at particular hours, which being calculated beforehand for the meridian of London, they may by an exact observation and careful calculation from it, correct their computed longitude; for, by the course and distance they sail, they compute how much their longitude and latitude are altered, which they call the ship's reckoning, which is never quite exact, and which in stormy weather they may lose.

Another method of determining the longitude of places has been proposed: it is by the variation of the compass. The needle in the compass is generally found to deviate from the true meridian, or the line of north and south; its line of direction is called the magnetic meridian. The needle, though balanced on its centre, is found also to deviate in different parts from its horizontal direction: this is called the dip of the needle. From observations made in different parts of the world, it is thought that there are, at some distance from the poles of the earth, two magnetic poles, or points, by which the needle is influenced, occa-

sioning the magnetic and the true meridians to differ ; this difference is called the variation of the compass ; that the north magnetic pole lies far north in America ; that the south magnetic pole lies far south New Holland ; that there are two lines, perhaps opposite lines, connecting the two magnetic poles, along which, from pole to pole, the needle has no variation ; and that the variation of the compass depends on the distance from these lines and the latitude of the place. Now it has been thought that if the variations were ascertained in the different parts of the world, and charts or tables formed of these variations, that by discovering the variation and latitude of a place, its longitude might be obtained by consulting the charts or tables. Several difficulties, however, perhaps insuperable ones, occur in the prosecution of this theory. The variation of the compass appears to be revolutionary round the poles of the earth ; the change is noticeable from year to year ; this circumstance alone renders the theory more complicated, if the revolution be even constant and regular, as an allowance must be always made for the difference of the time of the observations, and that of the construction of the tables or charts.

There is also a daily change observed in the needle, which appears to be vibratory, the variation being greatest about two or three in the afternoon, the hottest part of the day ; and this variation is nearly twice as great in summer as in winter. Besides, the needle is liable to be influenced by iron being in its vicinity, or bodies containing iron, as different rocks, soils, and ores ; and it also seems to be affected or disturbed by the aurora, or streamers. If the magnetic poles were sufficiently remote from the poles of the earth, and the direction of the needle towards them constant and steady, this method of ascertaining the longitude might be reduced to a very simple and convenient process ; but magnetism, as yet, seems to be a principle in creation the most wavering and capricious : by its varying influence the needle often changes in the most unaccountable manner ; and sometimes different needles seem in the same situation to give different variations.

If a true going time-piece could be obtained, the ascertainment of the longitude would be rendered very easy : by help of such an instrument we might readily ascertain our meridian in any part of the globe.

Furnished with a true going watch and a quadrant, if we set out with the Greenlandmen, suppose from London, and proceed towards the north ; the farther we advance in the voyage the more the pole will seem to rise in the heavens or sky, and hence we may know how far we have got to the north : if we find that noon is longer in coming on than we might expect it, from the watch, as rectified for the meridian of London ; or, in other words, that the watch is too fast for the place we are in, this at once informs us that we have got to the westward, or towards the American coast ; on the other hand, if we have noon before it is twelve by the watch, that is, before it is noon in London, we may be sure we have got to the eastward : if the difference between the watch and the time of the place we are in be one hour, we have got fifteen degrees eastward or westward of the meridian of London : if two hours, we have got thirty, and so on in proportion.

We

We may leave the whale-fishers, and effect, in imagination, the vainly attempted passage to the Pacific on the north: if we go right over the pole, when we arrive at that point, the quadrant may as before inform us of our situation; the quadrant, however, will here be superfluous, as at one view we shall see we are in latitude 90° , the heavenly bodies, whether sun, moon, or stars, all seeming to whirl round us in circles parallel to the horizon. Here the mariners compass can no longer point to the north: to whatever part of the horizon this magic-like instrument is directed, it will point to the south: the heavenly bodies alone can be no direction to us here; though unceasingly moving, they will be always on our meridian, every vertical circle being a meridian here. If, taking one of them as a point of direction, we attempt to steer towards it, away to the southward, it will but mock our vain pursuit; twenty-four hours will convince us of our mistake; for at the end of one daily revolution of the earth we shall have arrived at the pole, or the place we set out from, if our speed be equable; nor can we alter the matter by doubling our swiftness, except only in describing a circuit of twice the length before we return to the spot we set out from. In this distressful situation, to what expedient can we have recourse? our quadrant is useless, the compass would fail, and the heavenly bodies, perpetually whirling round us, seem but to bewilder us! Here, however, our watch seems to prove a most faithful guide; by it we can see when it is, at London, morning, noon, evening, or midnight.

If, when we know that it is 6 in the morning at London, we take our departure from the pole, having the sun on our right hand; if we keep so travelling forward, that the luminary shall by degrees take us in the rear, and against 12 o'clock, or the noon of London, be directly behind us; if we still continue travelling forward in the same direction, the sun by degrees takes us on the left, till at 6, or the evening of London, we have it directly on our left hand; if still travelling forward, when it is night in England we keep the sun before us, first towards our left hand, at 12 directly before us, and afterwards towards our right hand:—or, if we be supposed travelling by sea, we may express it in other words, if we keep the sun on our starboard bow when it is 3 of the morning by the watch, that is, in London; on our starboard beams at 6, on our starboard quarter at 9, right astern at 12, or when it is noon at London; on our larboard quarter at 3, on our larboard beams at 6, on our larboard bow at 9, and right ahead at 12, or when it is midnight at London,—this will be directly leaving the pole, and proceeding towards the Pacific: this course will bring us up with the remotest territories of the Russians in Siberia, near the arctic circle, where we find Asia and America within a few leagues of each other. Passing these straits, and entering the Pacific Ocean, we find when it is noon in London, or by our reckoning on the watch, that midnight darkness envelopes this opposite part of the world, by this we know we are in 180° longitude, both east and west from London; and by our quadrant we learn our distance from the equator. As we proceed towards the south, the stars of the northern hemisphere seem to dip below the horizon, and those of the southern

appear to rise in the heavens. When we cross the equator, the arctic pole seems to sink from our view, and the antarctic pole seems to emerge from the deep. We have the most southern capes of Africa or America to double before we can return home. If we steer east for America, the day will seem to come on quicker and quicker; if west for Africa, slower and slower, till having passed one of these capes, and got into the Atlantic, the day and our watch perfectly agree. When this is the case, we know we are once more on the meridian of London: we have, by the assistance of the quadrant, to gain the same latitude, and at the same time, by help of our watch, to keep on the same meridian we set out from; and this brings us back, after our ideal voyage, to the place we set out from. Thus, by a true going time-keeper, the difficulty of finding the longitude would be removed; but all works of art are liable to imperfection from their structure; and, besides this, the changes of heat and cold, and the motion of travelling militate against the regularity of a time-keeper, watch, or clock.

28. *Maps, Climates, Charts, &c.*] It is by longitude and latitude the situation of places is determined and described by the moderns. A true map of the world can only be delineated on a globe or ball. Maps, however, are projected upon different principles on plane surfaces. If a large space be described on one of these, it must necessarily be represented in a distorted manner; but the distortion, however, is regular, and any small part of the map in tolerable proportion with itself, though not with the whole. The lines that run from north to south in maps are the meridians. All the places that lie on one of these, from pole to pole, are in the same longitude. The lines that cross these from east to west, are called parallels of latitude, as they are really on the globe parallel to each other, and to the equinoctial. All the places that lie on one of these are in the same latitude quite round the world, or round the poles.

On the margins of the maps the degrees are marked; and by these we know the longitude and latitude of the places contained.

The ancients, in their scanty knowledge of geography, and before their invention of the manner of reckoning by the degrees of longitude and latitude, contented themselves with mentioning the climate as the situation of a place.

A climate is a certain space of the earth contained between two parallels of latitude, where the difference between the longest day in each parallel is half an hour. The climates decrease in breadth in proportion as they advance from the equator to the poles. There are twenty-four climates on each side of the equator. The equator is the beginning of the first climate, either to the north or to the south. The polar circle is the termination of the twenty-fourth climate. Within the polar circles, the longest day increases, not by half hours, but by days and months.

Astronomers mark the stars of every constellation on the celestial charts and globes with the letters of the Greek alphabet, denoting those that are the most conspicuous by α , and calling them of the first magnitude;

magnitude; the next by β , calling them of the second magnitude; and so on, in succession, to stars of the fifth and sixth magnitude.

Geographers sometimes place the compass in a vacant part of a map, to shew the bearings of the different places on it, the *Fleur de lis* always pointing towards the north; but, in maps of general geography, the top is usually the north; the degrees of latitude are marked on the sides, and the degrees of longitude, or the difference of time, along the top and bottom. If the figures along the sides increase upwards, the country delineated is in north latitude, if downwards, it is in south latitude; if the figures along the top and bottom increase from right to left, it is in western longitude; if from left to right, it is in eastern longitude. The scales in maps are for measuring distances. Towns and cities are represented by a church, house, castle, or other building, by a small circle; or, if fortified, by an indented circle or oval. Roads are expressed by double lines running close and parallel between towns or cities, and sometimes by single ones, the figures along them telling the distance. Rivers are represented by black lines, small near their source, and growing stronger to the sea. Mountains are sketched on a map as on a landscape. Forests and woods appear like little bushes. Deserts are represented by small dots. Bogs or morasses, and savannahs, are made out by shades of parallel lines; and lakes are represented by a darker shade. The dotted lines and party-colours in maps, serve to distinguish one country from another; and the line which represents the shore is strong and shaded, or rather lightened off into the water.

In topographical maps, or delineations of small or partial tracks of country, there is not so much attention paid to having the north to the top; and the same remark applies to sea-charts.

In sea-charts the land is often almost blank, while the channels, soundings, rocks, banks, sands, &c. are distinctly marked; and the shading of the coast is the reverse of what it is in maps. The meridians are often drawn in straight and parallel lines; and the lines of latitude are also straight parallels crossing the meridians at right angles. This is called Mercator's Projection. The points of the compass are also frequently repeated and extended through the whole chart, to shew the magnetic points, or the variation of the compass. The direction of winds, tides, and currents, is commonly denoted by arrows. Banks, sands, and shallows, are represented by small dots. Rocks are represented by small crosses, or sometimes by marks representing the points of rocks. Small anchors denote anchorage; and figures express the soundings in fathoms.

As Geography is properly and strictly a description of land, so a description of water is properly Hydrography.

29. *Planetary Laws.*] There are two principal laws observed in the solar system, which regulate the motions of all the planets.

First. The planets move through the arches of equal areas (that is of the equal portions of the planes of their orbits) in equal times. A line supposed to be drawn from any planet to the sun, is called a Vector Radius; this line, consequently, describes equal areas. When a planet in its orbit is receding from the sun, the attraction of the lu-

minary more directly counteracts its centrifugal force, and retards its velocity; at length, the attraction prevails, and the planet begins to approach nearer to the sun: in this approach the attraction increases, as before it counteracted the motion of the planet; the velocity however which it acquires in its approach to the sun, is the very force which again makes it recede from the luminary. Thus it is kept, as it were, swinging to and from the sun; as it recedes, it is retarded by attraction, and kept from flying off through the immensity of space; as it approaches, its velocity is increased; and this velocity again throws it off, and thus prevents it from falling into the sun.

Second. The squares of the periodical times of the planets are as the cubes of their mean distances from the sun; hence the proportion of their distances are easily ascertained, by comparing the times of performing their orbits. Was the real distance, therefore, of any of them determined, the distances of all the others might be thus obtained. By observations of the transits of the Venus over the sun in 1761 and 1769, we now know the real distances of the planets from the sun much better than before; and when the distance of an object is known, there are easy geometrical rules for deducing its real bulk from its apparent size.

30. *Ascertainment of the Motion of the Earth.*] When astronomical doctrines are first advanced to us, we listen with surprise, and naturally doubt: we ask, How can astronomers measure the stars, and tell their distances? for they are quite above us, and out of our reach; and how can they tell that the earth turns round? If we may believe our own senses, the earth stands still, and the sun, moon, and stars daily rise and set, to serve us for the purposes of light and of heat.

Those who have sailed in ships or in boats, may well remember, when once they had got accommodated to the motion of the vessel, so far from their being sensible of its progression, the objects that relatively were standing still, as the houses, the trees, and the shore, appeared to be in motion, while they themselves and their vessel seemed to be quite at rest: the testimony of our senses then alone is nugatory and futile in philosophical enquiries, and must be corrected by reasoning on the nature of things.

If the most prodigious weight and complication of artificial machinery that the powers of man could invent and execute were erected before us; if, among all the variety of motions that could be contrived in it, one small wheel, index, pointer, or hand, so minute as to require a microscope to discover it, turned round on its centre 10,000 times in a second of time, while the larger wheels were days, months or years in turning on their respective axis, it would certainly be most preposterous and unnatural to expect that the little microscopic wheel should sustain the whole; that it alone should be fixed and firm, and that the prodigious weight and complication of machinery should be whirled round it 10,000 times every second. Thus unnatural, and inconsistent with the laws of the creation, appear those theories in the eye of modern philosophy, which suppose that the earth stands still, and that the myriads of globes in the firmament, are perpetually whirled round in every 24 hours; for astronomers find by observation,

servation; that our earth is in size but as a small and dimensionless point, if compared with the distance of the fixed stars; and that even our whole solar system is but as a minute spot in what is nightly seen of the creation.

31. *Ascertainment of the Distances and Magnitude of Objects.*] To conceive how they ascertain the distance and magnitude of the planets, will be difficult for those who are unacquainted with the science of geometry: perhaps, however, an idea of the principles on which their calculations are founded, may be gathered from what is observable on earth; and first, if walking along a straight road, we pass any object on the right or left, as a tree or a tower; if the object lie close to the road, a very little distance will make a considerable difference in its bearing from us; at a very short distance before we come up to it, it shall appear almost directly before us, soon we shall be abreast of it, and as soon we shall leave it behind us; but, if the object be at a great distance from the road, we shall travel along for some time with it nearly abreast of us; and from hence we might form some estimation of its distance, if we had nothing else to guide us. In fact, by measuring a portion of the road, and observing the exact direction that lines would take, if pointed from the extremities of that portion of the road to the object in view; or, in other words, by observing the angles these lines would make with the road, a geometer might easily calculate the distance of the object from the road. On these principles, rather more complicated, they compute the distance of the planets. It is easy to conceive, if right lines are pointed from the geometer on the road to the extremities of the object, these lines will vary their direction, or form an angle more or less acute, according to the breadth of the object; but the distance being already ascertained on the principles of the triangle, he calculates as before, and thus determines the diameter of the object. We may readily see how the same method of investigation is applicable to the planets; their very great distance however from us, renders the angles so small, that the difficulty attending it should seem obvious and almost insurmountable. The place of the sun, or of a planet in the heavens, as it would appear to an observer, if seen from the centre of the earth, is the same as it appears to an observer immediately under it. An observer on the surface of the earth, to whom the object is not vertical, must look at the object in a rather different direction; the different lines of direction along which they must look, make an angle at the object; this angle is called its parallax; but the greatest parallax possible is so very little, even the semi-diameter of the earth being so short a line, when compared with the distance of the object, that it is difficult to determine it. Hence it is they have availed themselves of the transit of the Venus, or its intervention between the earth and the sun, to ascertain the distances of the planets; still, however, on the same principle, though vastly more complicated. The distance of a planet being ascertained, yet an object so very far distant appears but as a spot, or a point of very small or dimensionless magnitude. Here the telescope lends its assistance; and indeed, without it, but little could be done in this way. As viewed through the telescope the object is magnified, or it appears under a greater angle, it is cal-

culated on optical principles, how much bigger the object appears to us, or how much nearer it seems to be brought towards us, by means of the instrument; and this apparent approach being thus ascertained, its magnitude is calculated as if actually brought nearer to us.

SECTION III.

The Solar System and Starry Heavens.

The names and characters adopted by astronomers to express the planets are as follows, in their order, wherein they roll round the sun. Fig. 34.

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Mercury. Venus. The Earth. Mars. Jupiter. Saturn. Herschel.

32. *The Sun in the Centre.*] The sun appears to be an immense globe of fire, nearly a million times as large as the earth. It is placed in the centre of the system, and is supposed to give light and heat to the seven primary and fifteen secondary planets that have been discovered to move round it. By spots in its disk it has been found to turn round on its axis in about twenty-five days. These spots are frequently altering in their shape, situation, and number: and various have been the conjectures respecting these phenomena. Some have thought that the sun is an opaque body, mountainous, and uneven as our earth is, and covered all over with a fiery and luminous fluid, subject to ebbing and flowing, like our tides; and hereby successively concealing and unveiling the tops of the rocks and hills which appear like black spots. Others have imagined that the fluid, which sends us so much light and heat, contains a nucleus, or solid globe, wherein are several volcanos, that like Etna, or Vesuvius, from time to time, cast up vast quantities of bituminous matter to the surface of the sun, and form those spots which are seen thereon; and that as this matter is gradually consumed by the luminous fluid, the spots disappear till another eruption takes place. Some have thought that the sun consists of a fiery luminous fluid, wherein are immersed several opaque bodies of irregular shapes, which are sometimes buoyed or raised up to the surface, where they form the appearance of spots, which seem to change their form accordingly as their different sides are presented to view: others, that the spots are formed of a gross matter, like the scum of melted metal, and that these scums, as differently agitated, are formed into spots, or absorbed. Again it has been supposed, that the sun is made up of two kinds of matter: that by far the greatest part is solid and dark, and that this dark globe is encompassed with a thin covering of that resplendent substance, from which the sun would seem to derive its vivifying heat and energy; and that when any part of this resplendent surface is displaced, the inclosed globe appears in an unignited and comparatively dark state, which seems to indicate that the luminous matter that encompasses it derives not its splendor from any intensity of heat: and it has been imagined by some, that the

the interior may form regions serene and beautiful, equalling all that has ever been fabled of the Elysian fields.

If, however, reasoning from what we know, we look at this great luminary, and consider its effects as well as its appearances, perhaps it may seem the most natural conclusion, that it is no other than an elementary fire; like that, it affords us light and heat; and when it is viewed through the telescope, the glasses being smoked or coloured, or when its image is cast upon a white ground, through a telescope, it seems to discover a similar but vastly greater intestine motion. In this way the spots are seen to encrease and diminish in magnitude, and to change their shapes, something in the manner that our clouds do, or like combustibles in an intense fire; what is a facula or bright spot at one time, becoming a macula or cloud at another; what is now but one spot in a little time breaking into two or three, and sometimes two or three spots coalescing and uniting into one. In this way, a roundish spot, by estimation, not much less in diameter than our earth, has been seen to break into two, which receded from one to another with prodigious velocity; and in this way a spot has been observed to break to pieces, and slide in various directions, like a piece of ice when dashed on a frozen pond.

In the decomposition of things in our fires on earth, the parts fall into ashes, or ascend into vapour, and the fire becomes extinct; we may hence be induced to expect a consumption of the sun, without a continual supply of combustible matter. We ought, however, to remember that the sun, which, by its attraction, keeps the spheres in their orbits, does not probably, like our little fires, lose the materials which have been decomposed, but that they may still continue to form a part of this immense congeries of ever-stirring matter, this ocean of liquid fire; and that the sun may thus be said in degree to minister to its own consumption, or to feed its own fires.

Or, is it not a more probable opinion, that the sun is the grand center of attraction to all the elementary fire in the planetary system; and that there is, by one law of nature, a constant restoration of fire from the planets to the sun, equivalent precisely to that which is, by another law, incessantly effused from the sun upon the planets?

33. *Order of the Planets.*] The Mercury is the first planet in the order of the system. It is computed to be about 37,000,000 miles distant from the sun, and to move at the rate of 105,000 miles an hour, completing its orbit in about 88 of our days, or little less than three months, which is the length of its year. It is not much larger than the moon, being about 3200 miles in diameter, and exhibits the same difference of phases; being sometimes horned, sometimes gibbous, and sometimes nearly full, though not entirely, because its enlightened side is never turned directly towards us; but it is at all times perfectly well defined, very bright, and without any ragged edge.

It is so near the luminary, that we can seldom see it; and when we do, it is for so short a time, and mostly in twilight, that we can discover no spots on its face, and therefore we know nothing of the length of its days and nights. If the Mercury have its inhabitants adapted to the heat of their situation, it has been concluded that, at the time of their equinox, they must have a temperature, within ten degrees

of their poles, equal to the warmer regions of our earth: and that, in their hottest climates, water would continually boil, and our inflammable substances would be parched up, destroyed, or converted into vapour.

The Venus, the second planet from the sun, remarkable for its brightness, is computed to be 68,000,000 miles from it, and to move round it at the rate of 76,000 miles an hour, completing its annual revolution in 224 days, 17 hours, or above $7\frac{1}{2}$ months. Its diameter is 7700 miles, and its diurnal revolution is performed in 23 hours 22 minutes. Its seasons are more diverse than ours on this earth; its mountains have been calculated to be higher than those of the moon, and, like it, it has different phases. A moon also, or satellite, having a similar phase, has at different times been seen to accompany it.

When it is to the west of the sun, it is a morning star; when to the east, it is an evening star.

It is computed that the greatest heat on the Venus exceeds that of the coast of Guinea about as much as the latter exceeds that of the Orkney islands; that therefore, at sixty degrees latitude on that planet, if its axis were perpendicular to the plane of its orbit, the heat would not exceed the greatest heat on the earth, and of course vegetation, like ours, might there be carried on, and animals of the species which are on earth subsist.

Our Earth is the third planet in the order of our system. Its diameter is 7900 miles, and it turns round on its axis in the course of a day. Its distance from the Sun is 95,000,000 miles. It is attended by one moon, and moves at the rate of 58,000 miles an hour, completing its orbit in the course of a year; during which time we have twelve lunations, which seems to have given rise to the division of our year into twelve months; but this division more nearly, though not exactly, corresponds with the division of the zodiac into twelve signs.

The Mars is the fourth planet from the sun, from which it is distant about 144,000,000 miles. It moves at the rate of 55,000 miles an hour, and completes its orbit in a little less than two of our years. Its diameter is 4200 miles, and its rotation on its axis is performed in about 24 hours and 39 minutes. When we pass near it, it has a fiery appearance, and is often mistaken for a comet; but when we are on the opposite side of our orbit, it appears small, and scarcely to be distinguished from a fixed star. The analogy between the Mars and our earth is, perhaps, by far the greatest in the solar system. Their diurnal motion is nearly the same, and the obliquity of their respective ecliptics is not very different. It is rather flat at its poles, like our earth, and these appear brighter than the other parts of its surface, occasioned as it is thought, by the ice and snow in its polar regions: these spots are largest when turning out of their nearly twelve months winter, and least when returning into it, after having been so long exposed to continual light. This planet, when nearest to us, is generally gibbous; on its surface are seen spots and appearances like belts; its atmosphere seems remarkably dense, and it is computed that its warmest climate is not colder than many parts of Norway and Lapland are in spring and autumn.

The Jupiter is the fifth planet in the order of our system, and the largest

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largest that has yet been discovered, being nearly a thousand times as large as our earth. It is five times the distance from the sun that we are, and enjoys but a twenty-fifth part of the light, heat, and attraction of the luminary that we do; for the proportions of these are inversely as the squares of the distances; four moons, however, seem to cheer the inhabitants, if such there be, of this distant planet. It has no variety of seasons; its year is equal to about twelve of ours, and yet its day is not quite half so long as ours. From its turning so swiftly round on its axis, its figure is more oblate than that of the earth, being more than six thousand miles longer in its equatorial than in its polar diameter: this swiftness of its diurnal motion also draws its clouds and vapours into streaks or lines over its equatorial parts, forming what is called Jupiter's belts. These sometimes change the appearances; and their number is very variable. It is perhaps owing to this circumstance that the spots on the planet's surface vanish and reappear, and sometimes seem to break, or be divided into smaller pieces. The Jupiter is computed to be about 490,000,000 miles from the sun, to go at the rate of 29,000 miles an hour, and to be 89,000 miles in diameter.

The Saturn is the sixth planet from the sun, and is about 900,000,000 miles distant from it: it is carried along its orbit at the rate of 22,000 miles an hour, which it completes in $29\frac{1}{2}$ of our years. Its diameter is computed to be 79,000 miles: Its rotation on its axis has been discovered by Herschel to be completed in about ten hours and a quarter. It has seven moons or satellites continually revolving round it, besides a broad thin ring, set edgeways round it, which reflects light, and casts shade upon it.

The ring is detached from the body of the planet in such a manner, that the distance between the innermost part of the ring and the orb is equal to its breadth: being commonly viewed obliquely, it appears of an oval form, and through very good telescopes double, the inner ring appearing the brighter. A star has been seen through the opening, between the planet and the ring. Sometimes our eye is in the plane of the ring, and then it appears as a dark line across the planet's disk, or is invisible, either because the outward edge is not fitted to reflect the sun's light, or because it is too thin to be seen at such a distance. Among the various conjectures that have been made respecting the very singular appearance of the ring that accompanies this planet, some have supposed it to be the fragments or ruins of its exterior original shell, the rest of which has fallen down, and formed the present orb. If the ring itself be inhabited, they must have a day and night nearly equal to thirty of our years, as the sun shines for almost fifteen of our years on the northern side, then goes off, and shines as long on the southern side. Neither the Jupiter's, nor the Saturn's moons, nor yet the ring, can be seen without a telescope.

The Herschel is the seventh planet in the order of our system, and is twice as far distant as the Saturn from the sun, and will be nearly 83 years in going round it. It is ninety times as large as the earth, and is visible to the naked eye on a clear evening, if the moon be absent. Two moons, or satellites, have also been discovered revolving round it. The cold is supposed to be extreme at this distant planet, as the light is computed

puted to be less than a three-hundredth part of what we enjoy on our earth.

These we consider as the regular bodies of our system, so regular indeed, that their phenomena may be pretty exactly calculated for ages. There may be other planets, which human observation has not yet discovered, and which, perhaps, it never may.

34. *Origin of Astrology.*] Every planet, as well as the moon, may be in conjunction, opposition, and in quadrature, or in a quartile aspect with the sun. These terms are also used in a like sense when applied to any two of the heavenly bodies. Thus the sun and moon, or the moon and any planet, or any two planets, may be in conjunction, opposition, or quadrature. Besides these, the ancients reckoned other two aspects, the trine and the sextile; the former, when the bodies were distant 120 degrees; and the latter, when only half that distance. The aspects are marked by astronomers by the following characters:

Conjunction. Opposition. Quadrature. Trine. Sextile.

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The aspects have been supposed to influence the affairs of mankind; and on this notion has been founded the conjectural science of astrology. Judicial astrology is commonly said to have been invented in Chaldea, and thence transmitted to the Egyptians, Greeks, and Romans; but in latter times, its introduction into Europe was through the Arabs. It might well enough agree with the mythology of the polytheists of antiquity to consider the heavens as one great volume or book, wherein was written the History of the World, and in which every man might read his own fortune, and the transactions of his time; but how the Mahometans and Christians could adopt the idolatrous system of the Heathens, should seem perfectly unaccountable, were it not that there is nothing too absurd for the credulous and superstitious to receive. It seems, however, unnecessary to combat this system, however ingenious, with the weapons of religion or philosophy. The art is most obviously at variance with itself: the precession of the equinoxes has so far deranged the system, that the signs of the zodiac do not now fall in their proper original constellations: but if the signs or seasons are to be regarded instead of the constellations, the inventors of astrology ought to have formed a different system for the southern hemisphere of our earth, as the winter signs of that part of the world are those of our summer, and our winter signs are the summer ones of the southern hemisphere. Again, the discovery of the seventh planet completely destroys the system, as its supposed influence has not been taken into the account: for how busy may it not have been the invisible rogue! baffling every attempt of the profound astrologer when he erected his horoscope, or cast his figures, and disturbing all his destinies! This art, by which the credulous part of mankind has so often been imposed on, and by which the later Europeans have been not less insatuated than the ancients, is now generally exploded, though at this time there are some expiring efforts making towards its revival.

35. *Order of the Comets.*] The planets are not the only moving bodies to be observed in the heavens; we are sometimes visited by comets, which

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which may also be considered as a part of our system; but of the number, use, and revolution of these, our knowledge is very imperfect; they seem, however, far to exceed the number of the planets. They are so numerous, that no fewer than 450 are supposed to belong to our solar system.

Like the planets, they are observed to be opaque bodies, shining only by the influence of the sun, and like them are carried along in their orbits, by the combination of the centripetal and centrifugal forces; sometimes seeming to go forwards, sometimes backwards, and sometimes to be stationary. The great eccentricity of their orbits makes them liable to suffer considerable alterations, from the attraction of the planets, and of each other.

It seems, therefore, to prevent disturbances in the spheres, that while the planets revolve all of them nearly in the same plane, the comets are disposed in very different ones, and distributed over various parts of the heavens. The tails of the comets appear to be steams and vapours exhaled from their bodies and the gross atmospheres that surround them; and, like smoke, they are always in the plane of the comet's orbit, and opposite to the sun; except that their extremities incline towards the parts which the comet has left; and they perfectly resemble the smoke of a burning coal, which, if the coal remain fixed, ascends from it perpendicularly; but, if the coal be in motion, ascends obliquely from the motion of the coal: the tails, however, are of so subtile and fine a vapour, that, like electrical and boreal light, it does not refract the light of the fixed stars; we can see them distinctly through it.

They are called comets, from their having a long tail, somewhat resembling the appearance of hair. This, however, is not always the case; for some comets have appeared, which were as well defined, and as round as planets; but in general, they have luminous matter diffused around them, or projecting out from them. These bodies sometimes lose their splendor suddenly, while their apparent bulk remains unaltered. Their apparent magnitude is very different: sometimes they seem only of the bigness of the fixed stars; at other times they will equal the diameter of the Venus, and sometimes, even of the sun or moon. In 1652, Hevelius observed a comet, which seemed not inferior to the moon in size, though it had not so bright a splendor, but appeared with a pale and dim light. He observed of the comet which appeared in the early part of 1661, that its body was of a yellowish colour, bright, and conspicuous, but without any glittering. In the middle was a dense ruddy nucleus, almost equal to the Jupiter, encompassed with a much fainter, thinner matter. The nucleus soon grew bigger and brighter, and appeared divided into a number of parts or nuclei, one of which, much denser and brighter than the rest, was round, and represented a little lucid star. In about a week, the nuclei became more obscure and confused, and the whole head much diminished, both in brightness and magnitude; two weeks afterwards, its roundness was a little impaired, and the edges lacerated; a month after which, its matter was much dispersed, and no distinct

distinct nucleus appeared. The nucleus of the comet of 1618 is said, a few days after coming into view, to have broken into three or four parts of irregular figures. One observer compares them to so many burning coals; and says, they changed their situation while he was looking at them, as when a person stirs a fire; and a few days after, were broken into a great number of small pieces. Another account of the same comet, is, that on the 1st and 4th of December, the nucleus appeared to be a round, solid, and luminous body, of a dusky lead colour, larger than any star of the first magnitude: on the 8th, it was broken into three or four parts, of irregular figures; and on the 20th, was changed into a cluster of small stars. Comets have often also different phases, like the moon. Fig. 35.

As the tail of a comet is owing to the heat of the sun, it grows larger as the comet approaches nearer to, and shortens as it recedes from that luminary. If the eye be in a line, drawn through the middle of the tail, lengthways, the whole will appear round, as in fig. 36; if out of that line a little, it will appear short, as in fig. 37; and it is called a bearded comet when the tail hangs down towards the horizon. If the tail of a comet be viewed sideways, its length is seen, which sometimes seems bent, as in fig. 38, when the earth is not in the plane of the comet's orbit continued; when that plane passes through the eye of the spectator, the tail appears straight, as in fig. 39, 40.

As it has seldom happened that this distracted world has been clear of wars or other public disorders, the comets could hardly visit us at a time of perfect peace all over the world. And those who look for omens of impending calamities in the natural or established order of things, behold, with awe or terror, the approaches of the comets as certain presages of direful events; and generally find it not difficult to discern, that disturbances have happened about the time in some part of the earth. This is enough to fulfil the prediction, and confirm their credulity. On the other hand, some philosophers have not only supposed them to threaten, but even to perform still greater events. They have conjectured them to deluge the worlds they have approached, merely by the influence of their attraction on the waters of the planets. They have imagined them to fall into the sun, and to knock off, by the percussion, prodigious sparks from its body, which, cooling by degrees, and falling into proper orbits, have become habitable worlds.

Indeed, we know not but the macula on the sun's disk may be principally comets fallen on the sun, or ready to be projected, like sparks from the culinary fire, and to be drawn into their very eccentric orbits by the attraction of the sun, in its small orbit, acting most forcibly on them at their outset, and drawing them out of that right line they would otherwise have moved forward in. The macula apparently on the sun's surface may yet, some of them, be comets in their perihelions between us and the luminary; and many there may be near the sun, when we do not suspect their presence. Seneca relates from Posidonius, that a comet was seen when the sun was eclipsed, which had before been invisible, through the sun's superior light.

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light. It has been thought that those darkneses which are mentioned in history to have happened at times when the moon could not be interposed between the sun and the earth, must have been occasioned by comets in their perigee, between our earth and the sun. Such was the eclipse mentioned by Dion, which happened a little before the death of Augustus; and it is observable that Seneca saw a comet that year.

The periods of the comets which have been observed, vary from 75 to 575 years; and though their motions are not so regular as those of the planets, the returns of some of them have been calculated.

36. *Distance, &c. of the Stars.*] The prospect that the heavens afford us, is that of a vast vault or concave, spangled with an innumerable multitude of shining bodies. On lifting up our eyes to this magnificent theatre, we are struck with astonishment at the splendor and vastness of the scene; and without farther considering the firmament than as an appendage to our earth, as a splendid canopy spread over it, we are wrapt in silent wonder. Its height seems immeasurable, and the distance of the heavenly bodies, particularly near the horizon, appears to be immense: yet evidently vast as is the scene, inconceivably distant as are the shining orbs which bespangle the azure sky, their apparent distances and sizes are but as a span, a spot, an atom, or a point, compared with their real dimensions.

The traveller, weary and panting under the heat of noon, with languid step, heavy and slow, casts his eyes over the extended landscape, broods over the distance between him and his intended goal, and is dispirited with the long and dreary way.

The mariner, becalmed, descries the distant hills emerging from the deep, and faintly breaking the line of his horizon, measures, in imagination, the leagues that lie between him and his desired port; he anxiously wishes for the coming of the breeze, that may 'near' the hills, and may waft him to the place where he is wont to hail his friends ashore.

But what are these distances! what the magnitude of the whole globe! what the distance of the moon! of the sun! what the extent of the whole solar system! (and the orbit of the Herschel is more than thirty-six hundreds of millions of miles; moreover, the comets are launched out into the heavens many millions of miles beyond this orbit) what are even these distances! The whole solar system is considered by astronomers as but a spot or speck, compared with what is nightly seen in the firmament!

All the stars that appear to us to decorate the sky, with the whole milky way, that shining zone of light encompassing the heavens, is considered but as forming one stratum or congeries of shining orbs, but one of an innumerable number of them, which seem to be scattered about in the unbounded expanse! And the Sirius, which is the nearest to us of all the stars in the stratum in which our solar system is placed, and of which our sun forms one star in the innumerable multitude, is supposed to be four hundred thousand times the distance from the sun that our earth is, or (38,000,000,000,000) thirty-eight millions of millions of miles. That shining zone, the galaxy, is reduced,

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by help of the telescope, into distinct stars, each of which is supposed to be as far distant from the others as our sun is from those which surround it: and the whitish spots, or nebulae, in the different parts of the heavens, it is supposed, may be each of them a stratum, or congeries of stars. On application of the telescope to some of the nearest of these, the individual stars are discovered, which, by their multitude, make out this general whitish or shining appearance. Still, however, we meet with no limits to the vast expanse; for, on more and more increasing the powers of the telescope, new nebulae arise farther and farther distant.

It is supposed that light would be nearly three thousand years in reaching us, were it to come from the most remote star in our stratum, at the rate of twelve millions of miles every minute; then how prodigiously remote must those nebulae be from us which are not reducible into distinct stars by the telescope! According to the assumed distance of some of them, light must be about forty thousand years in reaching our earth.

When we regard these prospects, we seem, from our little world, to look out into infinity. Imagination is incompetent to form any idea of bounds; it fails to comprehend, to faintly conceive any adequate idea of the distances that have even been ascertained.

37. *Changes in the Starry Heavens.*] As the stars, contrary to the moon and planets, shine like our sun, by their own native light, astronomers suppose that each of them is a sun, with its system of inhabited worlds revolving round it. Under this idea or persuasion, of how innumerable a family do we seem to make a part! The immensity of the universe becomes peopled with fellow-beings, and we feel an interest in what appears to be going on at distances so vast, that what we see, as in time present, we have reason to believe (swift, inconceivably swift, as is the progress of light darting from the spheres) must have happened many ages ago. Under the idea of the universe being replenished with living beings, how magnificent, how awful, are the spectacles that present themselves to the observer of the heavens! The creature of a day, of a few fleeting moments, seems to obtain a glimpse of a new creation, a glimpse of the end of time, in the passing away of a system.

Of all the phenomena which have attracted the attention of mankind, the sudden appearance of new stars, and the disappearance of old ones, appear to be the most wonderful. *This* seems as if a planetary system were dissolved; *that*, as if a new one were brought into existence. An appearance of the latter sort first led Hipparchus to compose his catalogue of the stars, in order that posterity might be apprized of the true state of the heavens at that period; and since his time many changes of the same nature have been observed both by ancient and modern astronomers.

While some stars, observed by the ancients, are now no more to be seen, but are thought to be destroyed, and while new ones have appeared, which were unknown to the ancients, others have been observed slowly to change their places: some have been found to have a periodical increase and decrease of magnitude; some have vanished and reappeared

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reappeared, as at stated times, and others have undergone these changes irregularly.

Among the apparently new stars which have been discovered by the moderns, two have shone out with very great splendor; and in less than two years have totally vanished. The former appeared, in 1572, in that part of the heavens called Cassiopeia's Chair; the latter in that called Serpentarius, in 1604. It has been thought that even these are periodical stars, and that the former returns once in 150 years. The periods of change in those stars which have been ascertained to be regular, vary exceedingly; some passing through their changes in a few days, others not for several years. Respecting these changes in the stars, it has been thought that one side of them might be naturally much darker than the other; that when the star, by its revolution on its axis, had its dark side turned towards us, it became invisible, and that it resumed its former lustre on the light side of reappearing. It has been imagined that the sudden blaze of some stars may have been occasioned by the falling of a comet into them, by which means they would be enabled to emit a prodigious light for a little time; after which they would gradually return to their former state. And it has been supposed that some stars, by their prodigious quick rotations on their axis, may not only assume the figures of oblate spheroids, but that by the great centrifugal force arising from such rotation, they may become of the figure of mill-stones, or be reduced to flat circular planes like the Saturn's ring, so thin as to be quite invisible when their edges are turned towards us. But when very eccentric planets or comets go round any such flat star in orbits much inclined to its equator, their attraction in their perihelions must alter the inclination of the axis of that star; and it will appear more or less large and luminous as its broad side is more or less turned towards us. Reasoning from analogy, we do not suppose that the light of any star can be in any sensible degree eclipsed by so small a body as one of its own planets, at so immense a distance from us. But if, really, there be any such thing as a new star; if any of the old ones do actually pass away (for the changes in the starry heavens which may bear that appearance in our view, may yet be regular revolutions at periods of such extent as to involve in them many of the passing ages of mankind) may we not very naturally suppose that the chaotic and dark mass, to which a system may hereby be reduced, or from which a new system may be formed,—may we not suppose it to be a body sufficiently large to produce, by its intervention, a complete occultation of any star or sun? We may any of us form notions respecting these wonderful phenomena; but all our ideas of their real cause must be uncertain and conjectural.

37. *Structure of the Starry Heavens.*] While, for the purpose of calculating the motions of the planets, and indeed of describing every appearance in the firmament, it is convenient to consider the heavens as a vast concave or sphere, which they really seem to form to our view, they are now regarded, from the most extended observations that have been made therein, as an unlimited expanse, containing strata, or clusters of stars, with their accompanying planets of different sizes, and variously arranged or directed. When we view the

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milky way, it is thought that we then look through a great length or depth of the stars; when we view the other parts of the heavens, that we are then looking out at the sides of our stratum, where there is a less depth of stars, and consequently a thinner display of them on the azure sky. According to this, there must be the appearance of a milky way to other parts of the stratum; and also to the inhabitants, if such there be, of the planets that attend the stars which compose other nebulae, some of which are supposed to be much larger than that on which we are placed.

As the stars and nebulae are unequally distributed in the heavens, conjectures have been formed on the origin of their different dispositions. If it were possible, says Herschel, to distinguish between the parts of an indefinitely extended whole, the nebula we inhabit might be said to be one that has fewer marks of antiquity than any of the rest. He attributes the condensation of clusters of stars to a gradual approach effected in many ages, and ascribes a certain air of youth and vigour to many very regularly scattered regions of our sidereal stratum. He judges from appearances, that the stars are drawing towards secondary centres and will in time separate into clusters, so as to occasion many subdivisions; that our system, after numbers of ages, may very possibly become divided, so as to give rise to a stratum of two or three hundred nebulae; for it would not be difficult to point out so many beginning or gathering clusters in it. He thinks that some parts of our system seem already to have sustained greater ravages of time than others; that, for instance, in the body of the Scorpion, there is an opening or hole; and on the west border of it one of the richest and most compressed clusters of small stars, which would almost authorise a suspicion that the stars of which it is composed were collected from that place, and had left the vacancy. He supposes that the particular stars belonging to separate clusters, are prevented from rushing on to their centres of attraction by projectile forces, the admission of which will prove such a barrier against the seeming destructive power of attraction, as to secure from it all the stars belonging to a cluster, if not for ever at least, for millions of ages; and that we ought perhaps to look upon such clusters, and the destruction of a star now and then in some thousands of ages, as the very means by which the whole is preserved and renewed. That these clusters may be the laboratories of the universe, wherein the most salutary remedies for the decay of the whole are prepared.

In speaking of the planetary nebulae, by which name he distinguishes those spots that are all over equally luminous, he says, that if it were not perhaps too hazardous to pursue a former surmise of a renewal in what he figuratively called the laboratories of the universe, the stars, forming these extraordinary nebulae, by some decay or waste of nature, being no longer fit for their former purposes, and having their projectile forces, if any such they had, retarded in each other's atmosphere, may rush at last together, and, either in succession, or by one general tremendous shock, unite into a new body; and that, perhaps, the extraordinary and sudden blaze of a new star in Cassiopeia's Chair, in 1752, might possibly be of such a nature.

38. *Number of the Stars.*] Ere the powers of vision were yet increased by artificial means in the simple ages of antiquity, it was usual to express an innumerable multitude, an unbounded number, by comparing it to the stars of the heaven, or to the sand which is upon the sea-shore. The daring enterprize, as it was accounted by Pliny, of reckoning the former, was first undertaken, among the Greeks, by Hipparchus the Rhodian, who lived about 120 years before the Christian era. From his own observation, and those of the antients that preceded him, he inserted in his catalogue 1022, annexing to each of them the latitude and longitude which they had at that time. Ptolemy added four to this number; and many others were afterwards discovered by different astronomers who applied themselves to this subject. The shining multitude that is visible to the naked eye, however numerous it may appear from the irregular and scattered dispositions of the stars, is, when reduced into forms, more easily reckoned than might be imagined. All the stars that can be seen in the whole visible hemisphere are not above 1000; but when the telescope is applied to the heavens, they appear to be infinite in number. The stars inserted in the catalogue by Flamsteed, amount to about 3000, which number has been since augmented to nearly 5000 by Halley, La Caille, Le Monnier, and others; and, from the accuracy of their observations, there is scarcely a visible star, the situation of which in the heavens is not better known than that of most cities and towns upon the earth. Herschel, in surveying the *via lactea* with the telescope, has found, that by allowing 15 minutes for the diameter of his field of view, a belt, or space in the sky of 15 degrees long and two broad, which he had often seen pass before his telescope in an hour's time, could not contain less than 50,000 stars, large enough to be distinctly numbered; besides which he suspected the presence of twice as many more, which could be seen only now and then by faint glimpses, for want of sufficient light. In the most crowded parts of the milky way he had fields of view that contained no fewer than 588 stars, and these were continued for many minutes, so that in one quarter of an hour's time, there passed no less than 116,000 stars through the field of view of his telescope. He thinks that the stratum in which we are placed, may contain many millions of stars. In viewing the stars, some of them seem double; but this appearance arises from two of them, at different distances from us, being nearly in the same line.

As all the stars visible to the naked eye, with the whole milky way, are supposed to constitute only one of those apparent patches in the heavens, called *nebulæ*, how prodigious must be the number of inhabited worlds, if every star have its system of planets, with their inhabitants. The *nebulæ*, already discovered, amount to many hundreds; and their disposition and shape, as seen from our earth, are various. They appear double and treble, variously arranged; large, with small seeming attendants; narrow, but much extended, like lucid or bright dashes: some are of the shape of a fan, resembling an electric brush issuing from a lucid point; others of the cometic shape, with a seeming nucleus in the centre, or like cloudy stars, surrounded with a nebulous atmosphere. A different sort, again, contain a nebosity of

the milky kind, while others shine with a fainter and mottled kind of light.

39. *Motion of the Stars, &c.*] It seems to be a fact, confirmed by astronomical observations, that many of the stars, which we call fixed, are really in motion, though that motion be either so slow in itself, or their distance so great, that it is scarcely perceptible in half a century. This motion is discovered in the Arcturus, Sirius, Aldebaran, Procyon, Castor, Rigel, Altair, and many others; and it is supposed that there may not be one fixed star in the heavens; that, on the principle of attraction, if one star be in motion, the others must be affected thereby; that our sun is in motion, and carries its system of worlds along with it; and that there is a general motion of all the starry systems.

If the same mechanical or physical laws pervade the whole starry regions, which Newton has discovered to regulate the solar system, we must naturally suppose that motion is necessary to balance that of attraction throughout the whole material universe. We observe in the earth and moon, that by the centrifugal force they are prevented from falling upon each other; but what prevents them from falling together to the sun? The centrifugal force. But what prevents the solar system from falling to some of the stars? If we suppose it is by being balanced, in being attracted in different ways by different stars, we must expect that the stars on the outside, if there be any bounds to creation, to the works of an Infinite Being, will rush inwards, till all be involved in one mass or heap, unless we suppose a general motion of the whole universe round one common centre, or unless the whole starry heavens be bounded by some great material vault, by the attraction of which on the spheres they are prevented from rushing together. This latter idea seems gross; the former supposes every thing in perpetual motion, an affection of which matter seems as susceptible as it is of rest, being equally indifferent to both.

In considering the order of the spheres, we discovered, as far as we can comprehend it, a certain beauty, simplicity, and regularity in their courses; but we cannot fathom the whole. The space wherein they roll is to our view unbounded; but whether space be infinite, without top or bottom, or whether it have limits, is to our finite capacities utterly incomprehensible; equally so, whether it be bounded or endless. In the contemplation of these things, the human understanding is bewildered, and all our faculties are overpowered and lost in the unfathomable abyss, in the unbounded expanse, even of the visible creation.

PART II.

THE ECONOMY OF

THE SUBLUNARY WORKS OF CREATION, INANIMATE AND LIVING.

HAVING taken a view of the figure of the earth, and contemplated our globe as undergoing the vicissitudes of day and night and the course of the seasons, from its planetary revolutions; having observed the laws of motion in general, considered the solar system as influenced thereby, and having taken a view of the universe at large, as far as the conjectures of astronomers can carry us, we may now desist from astronomical excursions, and, in the varied and ever changing, the sublunary works of the creation, find an inexhaustible field for admiration and studious research; and for the mind that can receive it, an awful and instructive lesson of morality.

It is not the fleecy cloud floating in the air, or sweeping along, borne on the wind, the purling stream, the gliding river, or precipitated cataract, hastening to the deep; it is not the grass of the field, the trees of the forest, the animated tenants of the earth, the air, or the waters, growing to maturity, or passing to decay; it is not these alone that pass away; the fields themselves, the everlasting hills, the vast extended ocean, these also have their vicissitudes; and it seems to be a law, inscribed in intelligible characters on the face of all material things, that they shall be subject to continual change.

SECTION IV.

*Of the Four Elements, Divisibility of Matter, Perpetual Motion,
Chemical Laws, &c.*

40. *The Four Elements.*] Various were the systems which philosophers imagined, relative to the number and nature of the elements, to which the various compositions of bodies may be reduced, till Democritus, Aristotle, and Empedocles acknowledged, as first principles,

ciples, air, water, earth, and fire. Their opinion has been well received for many ages; and this simple and beautiful analysis, though totally incompetent to express or exhibit the present state of knowledge, is not without its excellence. Perhaps, however, it would still better accord with our imperfect view of things, when unaided by the experiments and observations of the philosopher, to consider only air, water, and earth as elements, and to regard fire as an incomprehensible sort of agent, to which these bodies are continually subjected. Adopting this system, how simple, how beautiful, how sublime and comprehensive is our philosophy! All material things, we say, are reducible to the three elements, air, water, and earth; and, by means of fire, the whole creation is unfolded or brought forth, and by different degrees of it the whole economy of things is sustained or destroyed. Without heat the fertile earth becomes a hard and barren clod; we have no longer showers of rain, or rivers of water, but the earth and the water, with all their productions, whether living or inanimate, are stiffened in frigidity; and the law which subjects all things to a continual circulation of decompositions and successive generations, is suspended. There is no more vegetation; animal life is extinct, and vegetable and animal substances cease to decay. The genial warmth of the sun's beams renews the face of things; the icy fetters of rivers and seas are dissolved; mists and exhalations are raised to fall again in dew or showers, and give rise to rivers; the plants put forth their leaves, blossoms, and fruits, and the animated tribes of creation rejoice; and when the dissolution of these creatures takes place, they return to their original dust, to give birth or sustenance to succeeding generations of animals and plants. The air, surrounding on all parts our habitable world, is by different degrees of heat agitated into breezes or winds; the meteors and the ocean partake of its motions; and thus an unceasing circulation is kept up.

Excess of heat decomposes the different kinds of bodies. The gross particles are reduced to earth, in form of ashes or soot, while the moist fly off in vapour.

Such is the view which seems naturally to present itself to us, on regarding the works of creation. The philosopher stops not here; he subdivides all our elements, and even our seemingly never-resting agent, fire, which we could not see, except in its effects, which we could form no conception of as a substance, he analyses. He divides it into light and heat. The former he decomposes, or reduces into distinct and separate rays; the latter fluid, when in a state of liberty, he pursues through the various bodies which it successively enters, modifies in various ways, and quits; he detects it even when it passes into a state of combination, when it is latent, and seems extinct, and in its various degrees he contrives to subject it to rigorous calculation or measurement. One thing, however, is common to the simple observer of nature, or of the order or economy of creation, and to the most profound enquirer, the most acute experimentalist; it is this, in all our researches we can only regard matter in a mass; we cannot lay hold of the particles whereof the masses are formed.

41. *Divisibility*

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41. *Divisibility of Matter.*] We have already seen how naturalists account for the planetary revolutions, and how large a share of the work they attribute to attraction; how they rest the order of the spheres and of sublunary things on this prevailing principle, for their support. They tell us of a variety of kinds of attraction, as those of cohesion, gravitation, magnetism, and electricity. It is true, we may observe many very different appearances of attraction; but possibly they may all be only different modifications of the same prevailing principle, by which all things in the natural world are upheld. For aught we know, the original particles of matter, abstracted from all combination (if this ever happen, or can possibly be) may be all the same; and the smallest atom of matter that human observation can lay hold of, by help of the finest microscope, may be composed of ten hundred times ten thousand millions of the original uncompound particles of matter. It is found, however, that a living animal, which, under the simplest economy that it is ever found to exist in, is a complicated and wonderful machine, often, through its minuteness, escapes the finest human eye; witness the animalcula discoverable only by help of glasses: and myriads there are, no doubt, that escape all human observation.

When we consider these things, we seem to look down into infinity; and as, in the contemplation of the starry heavens, we can conceive no term to the extension of space; so, in regarding the minute parts of creation we see no end to the divisibility of matter. We are lost in wonder when we attempt to comprehend either the vastness or minuteness of creation, and are necessarily made to feel that it belongs only to the one great and incomprehensible Power, who worketh in ways past finding out.

Philosophers think they can conceive it possible for the world, and even the whole universe, to be reduced to a globe of an inch diameter, or even to the smallest size, merely by bringing the particles of which they are composed close together; and thus filling up the cavities or pores. They say, it is not difficult to understand how a body hard and solid may be compounded of particles, so formed, that when brought together, the pores between them may be equal to the particles themselves. In this case, the solid matter of the body takes up only half of the space occupied by the whole. If each constituent particle be formed of other less ones, in the same manner, the solid parts of the body are only one-fourth of the whole. If the less particles be constructed of similar minute ones, the solid parts of the body are only one-eighth of its bulk. If the minute ones are formed in similar manner, of still more minute ones, the solid is one-sixteenth of its apparent bulk, and so on, *ad infinitum*; but the real structure of bodies we know not; therefore, the whole material universe may be so constructed, as to be capable of being reduced to the smallest size, merely by bringing the particles of which it is composed into close contact.

But if we must become their disciples, and grant these *postulata*, may we not in our turn observe, that it is not difficult to understand how a body hard and solid may be compounded of particles, so formed, that when brought together, the pores may be less than the

particles themselves; and if a similar construction prevail in the particles composing these through subdivisions, as above, *ad infinitum*, will it not follow, that the whole universe may be reduced to something less than nothing?

We have already seen how the motions, and even the figures of the spheres are accounted for. Their orbits and their spheroidal forms depend on the combination of the centripetal force with attraction: a principle which seems to be instituted throughout the whole creation. Hitherto we have only considered this universal law as acting upon large masses of matter indiscriminately; keeping things together in heaps (if we may be allowed the expression) at least; causing no other order in the disposition of things but what arises from their different quantities, or different degrees of density or gravity. That most simple and beautiful figure, the sphere, is the form into which these masses of matter are naturally resolved, and the laws, which regulate the motions of the spheres seem simple when compared with the sublunary parts of creation. We easily comprehend the order of things in the celestial concave: it is mechanical. In contemplating the sublunary works of creation, we are lost in the endless variety: it is chemical. Such are the distinctions which we are obliged to make; but if our dull senses were sufficiently acute, we should perhaps see that these distinctions are unnatural, and that attraction, in all its modifications, is a principle one and the same.

Were the attraction of gravitation alone to obtain, whatever may be the present irregular appearance of the globe, it should seem its surface would soon assume the smoothest form. All works of art must tumble to the ground; and the sea and its shores, the river and its banks, the mountains, and their valleys, and even man and brute, with all their powers, and all their animation, must give up their bodies to the general mixture; or to the disposition that would hereby prevail among bodies to lie in strata, or layers, according to their different densities. Such are the effects that would take place, were earth, water, air, and fire, simple elements; or, indeed, if there be any such things as simple elements of different densities, this disposition in layers would take place; but it seems more probable, were what we call the attraction of gravitation alone to exist, that the general mixture of things would be a true chaos, or perhaps an homogeneous mass of atoms. These effects, however, seem prevented; and the order of things nicely balanced and sustained, by the several partial attractions of cohesion.

To this prevailing principle in the natural world, we may refer the most complete and curious productions. This we may behold and admire; and were it in our power to modify this principle according to his wishes, we can hardly imagine a labour too difficult for his achievements. Indeed, superficially glancing at some particular effects of cohesion, he might be flattered, for a moment, with the expectation of producing something great; and, by their combination, he might hope to effect what some wrongheads have strangely attempted: he might imagine it possible to contrive a machine that should work of itself, or keep it in perpetual motion, and thus enable his fel-

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lows to cease from their labours. At present availing ourselves of winds and of waters, by lifting a flood-gate, by hoisting a sail, or by applying of fire, as in the steam-engine, we have many useful labours performed : but could such a machine be constructed by the art of man, as to keep in perpetual motion of itself, we then might succeed in the most extravagant attempts. The farmer need then no longer wait for his horses to break up the ground ; his self-impelled machine might be brought to perform this laborious business. The mariner need no longer be detained by the calm, nor the citizen by that painful disorder the gout ; each, in his machine, could answer every purpose of navigation or business ; and, if weary of being confined to the surface of the globe, I know not but each man in his machine might at once ascend on high, and outstrip the fleetest inhabitant of the air.

The effects of cohesion alluded to, which might make man look for these preposterous discoveries, and forget that labour is to be his lot ; and that no machine can give new strength, seeing it will take from him time, if it give force to his efforts ; and, if it give them swiftness, it will lessen their force. The effects are these ; water and other fluids are made by cohesion to rise above their level. A piece of bread, loaf sugar, or a sponge, will attract or draw up a fluid. The ends of a small glass tube, being both open, if one end be dipped in water, the fluid will rise in the tube to a considerable height above the level : now if the tube, when it has thus received the fluid, would of itself contract in its diameter, and close up the cavity from the bottom upwards, and open or dilate in the same order, the water might hereby rise and run over at the top of the tube, and thus produce a perpetual motion : but these are effects the art of man can never accomplish. These seem to obtain, however, in the works of the creation, and there only are to be found ; on this simple process, which no human art can imitate, all natural life seems to depend ; in this way, the herb seems to draw its juices from the earth ; and the tree its sap, to the remotest branches. Thus, in the bodies of all animals, nutriment seems to be secreted from their food ; their fluids circulated ; and, indeed, their every action performed, whether designed or involuntary.

42. *Affinity of Composition.*] The discoveries which philosophers have made in the sublunary works of creation are great. Every substance which they have found unalterable by the chemical methods of decomposition, they have considered as a simple or elementary substance, and the number of elements has accordingly varied, according to the progress and revolutions of chemistry. They even imitate, or produce by decomposition many of the unorganized parts of creation, and also form compounds which are not found in nature. They say, that bodies of different kinds have a tendency, or attraction, towards each other, which is more or less strong ; and that it is by virtue of this force that all the changes of composition, or decomposition, observed amongst them, are effected ; and this seems absolutely true throughout the whole mineral department, or wherever the construction of bodies is not fibrous or organized.

It is so much the more difficult to decompose a body, as its constituent principles are united or retained by a greater force. Gases, and especially

especially vapours, continually tend to combination, because their aggregation is weak; but solids will not combine with solids till they are first reduced to a fluid state, or at least attenuated by extreme division. Were it not for this law in creation, that bodies tend to unite and combine, in proportion as they approach to their primitive, or elementary state, the mass of elements would continually increase by successive and uninterrupted decompositions, and we should insensibly return again to that chaos, or confusion of principles, which is supposed to have been the original state of the globe. If all bodies had the same degree of affinity with each other, no change could take place among them; but, the affinities being varied, and each body having appointed to it its relation with the various substances presented to it, it seems to chuse to unite with one in preference to another; and hence this kind of affinity has been called elective attraction. It is in consequence of this difference in the affinities, that all chemical decompositions are effected: all the operations of art, and all the changes in the sublunary works of creation seem to be found upon it.

The affinity of composition has received different names according to its effects. It is divided into simple affinity, double affinity, the affinity of an intermedium, &c.

1. Two principles united together, and separated by means of a third, afford an example of simple affinity: when, for instance, a solid is held in solution by a liquid, and a third body is added which has a greater affinity to one of the bodies in the composition than they have to each other, it combines with it, and the other body is disengaged or displaced. The liquid in which the solid disappears is called the solvent, or menstruum; and that which falls to the bottom in the decomposition, is called the precipitated. An alkali precipitates metals from their solutions. The precipitate is not always formed by the disengaged substance; sometimes the new compound itself is precipitated.

2. It often happens that the compound of two principles cannot be destroyed, either by a third or a fourth body separately applied; but if these two bodies be united, and placed in contact with the same compound, a decomposition or change of principles will then take place. This phenomenon constitutes the double affinity.

3. There are cases in which two bodies, having no perceptible affinity to each other, obtain a disposition to unite by the intervention of a third; and this is called the affinity of an intermedium. An alkali is the intermedium of union between oil and water; hence the formation of soaps, the theory of lixiviums, &c.

The compound, which results from the complete combination of two bodies (for we must not consider simple mixture as affinity of composition or combination), possesses properties totally different from those of its constituent principles. Hence some inveterate poisons of different kinds, when combined, so neutralize the obnoxious qualities of each other, as to become an innocent potion. From what a variety of bodies we derive nourishment, consequently chyle, blood, &c. and differently constructed plants in the very same soil, and under the same outward circumstances elaborate wholesome and delicious

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fruits, or deadly poison. In the mineral department, or the unorganized part of creation, every thing is subjected to the invariable laws of the affinities. No internal principle modifies the action of natural agents; and hence it arises that their effects may be foretold, produced, or modified. In the vegetable department, the action of external agents is equally evident; but the internal organization modifies their effects, and the principal functions of vegetables arise from the combined action of external and internal causes. Hence the principal organs of vegetation are disposed upon the surface of the plant, in order that the various functions might at the same time receive the impressions of external agents, and that of the internal principle of the organization. In animals, the functions are much less dependent on external causes, and the principal organs are concealed in the internal part of their bodies, as if to withdraw them from the influence of foreign powers. The application of chemical principles to the phenomena of the human body is very difficult, because they are subordinate to the animal economy, or vital principle; and the organization is not only very complicated, but the effects are continually varied, by the powerful influence of the mind. There seems to be a surprising reciprocity, a most intimate nearness between the body and the mind; when the body is in health, the mind feels the energy; and when the spirits are kept up, the health of the body is promoted. In some diseases the humours are decomposed in the body, and, it seems, in such cases, as if the vital principle abandoned the government, and left the solids and fluids to the destructive action of external agents; in consequence of which they became decomposed, in the same manner as they usually do when separated from the body; and when the principle of animality is once departed, the effects are accelerated.

On whatever part of the creation we cast our eyes, it is altogether wonderful. Whether is it an infirmity, or an excellence in our nature, that we are struck or captivated by what is uncommon? We are accustomed to the view of the great spectacle of creation, we are familiarized with the feelings of our own existence, incomprehensible wonders are perpetually about us and in us, and yet we regard them without admiration, and without surprize. In art, what a curiosity to see a reel in a bottle, or a ball cut out of the solid, rattling in a carved stick! They sometimes form amusive articles in a museum; but, is the kernel in its shell, or are the peas in their pods less curiosities? Chains also, cut out of wood or paper, are curious; but surely they are not more so than those tendons in the hands and feet, which perforate, or are perforated, and pass one through another. Throughout the whole of organized creation, there appears so much design, such provision made for every purpose, such elegance of structure we cannot but admire; but in the mineral department, where, in the formation of bodies, we should only expect to see the coming together of atoms in a tumultuous, irregular, or accidental way, how are we rapt in astonishment at the appearance of a regular or determinate figure!

The particles which are brought together, and united by affinity, whether they be of the same nature, or of different natures, continually tend

tend to form bodies of a polyhedral, constant, and determinate form. When this beautiful law in creation, by which the different productions are impressed with regular forms, began to be noticed, the crystallizations were distinguished; according to the inaccurate resemblance they bore to other known bodies. Hence the denomination of crystals in pyramids, needles, points of diamonds, crosses, sword-blades, &c. Since that time, more accurate observations, and more precise ideas seem to have been formed on these geometrical figures. It has been thought that each crystal has a nucleus, or primitive form, the simple modifications and shades of which are distinguishable in the crystals of all analogous or identical substances; and the crystallization of bodies, though liable, from various circumstances, to be changed and modified in a thousand manners, has been yet adopted as a basis for the method of classification in the mineral department.

Philosophers tell us, that the principal agent employed in nature to balance the power and natural effect of attraction, is fire. By the natural effect of attraction, we should possess none but solid and compact bodies; but the caloric, or heat, unequally dispersed in bodies, tends incessantly to destroy the adhesion of the particles; and it is to this principle that we are indebted for the varieties of consistence under which bodies present themselves to our observation. The various substances that compose this universe, are therefore subjected, on the one hand, to a general law which tends to bring them together: and, on the other hand, to a powerful agent, which tends to remove them from each other: it is upon the respective energy of these two forces that the consistence of all bodies depends. When the affinity prevails, they are in the solid state; when the caloric is most powerful, they are in the state of gas, and the liquid state appears to be the point of equilibrium between these two powers. We may readily receive these assertions, according to our own simple analysis; but will chemical precision admit such a language? We have been informed that heat is a body; and after all that we have heard of the affinities, may we not even refer the apparent extensions, dispersions, and repulsions of bodies to attraction? The particles of bodies do not touch, else how could bodies contract by cold? The caloric, or heat between the particles, escapes, by which means they come together. Heat expands bodies; the caloric insinuates itself between the particles, separates them, and combines with them.

The various states under which bodies present themselves to our view, depend almost entirely upon the different degrees of combination of caloric with those same bodies. Fluids do not differ from solids; but because they constantly possess at the temperature of the atmosphere the dose or quantity of caloric which is requisite to maintain them in that state, they congeal and pass to the concrete state with greater or less facility, accordingly as the requisite quantity of heat is more or less considerable. All solid bodies seem capable of passing to the gaseous state; even the most refractory metal melts, sublimates, or is dissipated in vapour, if a very strong heat be applied to it.

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As the economy or order of the natural world seems to depend on a succession of solution and crystallization, of evaporation and concretion; so the philosophers, in their researches, are principally engaged in processes of this sort. It is by these means that they apparently reduce to their constituent principles, many of those bodies which appear to common observation elementary substances. They know, however, after all their researches, that they can but very imperfectly unveil the secret things of creation; that the bodies which they denominate elements, as the results of their analyses, may yet be compound substances, and that it would be arrogance to suppose that the term where the artist stops is the place where the structure or economy of creation begins.

SECTION V.

Of the Mineral Department, or unorganized Part of Creation, including the Fluids, &c. as Electricity, Light, Heat, Atmosphere, Meteors, Water, &c.

Having considered some of the general laws in creation, we may now enter a little into the detail of the parts of it; first remarking that there may be many substances which are not yet discovered, both within and without us, and which, from the dulness of our senses, perhaps never may. We speak of different substances, because substances appear to us differently; perhaps, however, they are only different modifications of one original substance; and all the different appearances may be referable to the different modes of attraction by which their component particles are kept together.

43. *Magnetism.*] The most silent and secret of all the material things we are acquainted with, seems to be the magnetic fluid. Perhaps its influence prevails everywhere, though its presence be only discoverable by iron. It is supposed that the loadstone emits an effluvia attracted by iron, and fine or thin enough to pass through gross bodies; that hence a needle lying on the top of a table may be moved, on applying the magnet or loadstone underneath; that there are mines of this stone in the northern parts of the globe, large and powerful enough to influence its kindred body iron all over the world; that the pieces of iron and steel which we see in common use, or lying about, have their poles or particular parts adapted to receive the effluvia; that they are all making weak, though invisible efforts to turn this pole, or extremity, towards the mines of the north; that generally not being able to subdue surrounding obstructions, their efforts are enfeebled: but when they are balanced, as the needle in the compass, and particularly when prepared like it, they assume their most natural position; and, in maintaining it, gather attractive strength; and thus serve to guide the miner in the darksome cavern, the pilgrim in the desert, and the mariner on the ocean, when stars and landmarks are no longer in view.

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The magnet or loadstone, is a true iron ore; and the smallest piece of it has its poles. That pole which points towards the north, is said to be really its south pole. In different magnets the opposite poles attract each other; that is to say, the north pole of one magnet attracts, or is attracted by the south pole of another. It seems to be shewn by nice experiments, in scattering steel filings round a magnet, that there emanates a fluid from one of its poles, which passes externally to and enters the opposite pole, the filings falling into the direction of the magnetic stream or atmosphere. If this be the case, may we not see, in the smallest magnet, a miniature representation of the magnetism of the whole earth? Iron is one of the most universally diffused bodies in the universe; it exists in the bodies of animals and plants as well as in the mineral department; and may not the nucleus of the whole earth be a prodigious magnet, giving out, at the northern pole, a constant stream or flood of the magnetic fluid, and receiving it at the south pole? In this case, we may readily conceive of a magnet or magnetic needle, suspended by a thread, floating on a piece of wood, or balanced as in the compass, we may readily conceive that its northern pole, giving out its little stream of magnetic effluvia, would be pressed towards the south by the general magnetic fluid; and that its southern, or receiving pole, would be attracted towards the north; we may also easily comprehend how the northern poles of different magnets, by their emission of the magnetic fluid, seem to repel one another, while the receiving and emitting poles of different magnetic strongly attract each other, and become as one continued magnet. The polarity of magnetism appears to be communicated, destroyed, or inverted, by various means. All these effects are produced in iron by its being differently touched or rubbed by the loadstone; by being heated and cooled in different ways; by being long continued in particular positions: thus iron window-bars and fore irons, from their upright situation, often require the magnetic virtue: by being hammered, thus steel tools often become highly magnetic; and by lightning or an electric shock. From this last circumstance, it has been thought, that a constant and regular circulation of the whole mass of the electric fluid may be the original cause of magnetism in general. Perhaps magnetism and electricity are different modifications of the same incomprehensible principle; perhaps the contrary poles in magnetism are analogous to the contrary kinds, or rather modifications, of electricity. Both magnetism and electricity seem in many instances equally fickle or capricious, if we may be allowed the expression; equally evasive of the pursuit of the philosopher. The poles of the magnet, in different parts of the globe, are differently inclined towards a point under the horizon: this is called the dip of the needle. The poles do not incline exactly to the poles of the earth. The declination of the needle from the poles, is called the variation of the compass. The variation is different in different parts of the world, and even in the same place at different times.

In this country, the variation is at present westerly, and it increases every year; it was about 12 degrees easterly at the latter part of the

16th century; there was no variation about the middle of the last century; but at this time it is above 20 degrees to the west.

There is also a daily change in the needle; it gradually moves a little westward till two or three in the afternoon, after which it as gradually falls back again: this variation is nearly twice as great in summer as in winter; and it appears also to be affected or disturbed by the auroræ or streamers:—those beautiful meteors, which hardly fail to divert and delight in their seemingly capricious vagaries, when the gloomy horrors of superstition do not deform the scene, in boding of wars; and which actually enliven the tedious night of winter to the little people round the pole, lighting them to their business and sports on the ice or snow. The streamers or auroræ, in the northern regions of our atmosphere, are supposed to arise from the electric fire, flashing as it passes from cloud to cloud.

Perhaps the magnetic effluvia may abound in those parts, and concur with the electric fluid in producing those phenomena, by which the electric fire may perhaps be dissipated; and the northern regions thus freed from the dreadful effects of lightning, experienced in other parts. In the southern hemisphere also, in a high latitude, streamers have been seen. These in contradistinction, may be called *Aurora Australes*.

44. *Electricity.*] Electricity, in general, signifies the operations of a very subtle fluid, which rushes through some bodies with inconceivable velocity; these are called conductors. At others it stops; these are called non-conductors. The non conductors are glass, and all vitrified bodies; diamonds of all kinds; balsamic and bituminous bodies, as resins, wax, sulphur, amber, &c. &c. The coverings of animals, as feathers, wool, hair, bristles, silk, &c. by rubbing of these, we seem to collect around them an electrical atmosphere; and thus excited, they will attract light bodies of the conductor kind; as gold-leaf, paper, straws, &c. The antients were only acquainted with this property of attraction in amber (*electrum*): it is found, however, to hold with the other non-conductors; hence they are called also electrics. Conductors, on the other hand, are called non-electrics. No rubbing or excitation of these will collect or agitate the electrical fluid; but if suspended by hair, or silk-cord, or supported by glass, or any of the electrics, at a sufficient distance from the floor, wall, &c. (which latter are conductors, and communicate with the earth) they may be charged, as it is called, with positive or negative electricity. The conductors, or non-electrics are all metals, and the greatest part of minerals; water, and all aqueous and spirituous liquors, and whatever contains in them any of these; as living creatures and animal substances; as leather, bones, shells, &c. trees and plants; thread, ropes, paper, &c. even glass itself, or any of the electrics, if moistened or wet, become thereby conductors; and will not collect the electrical fluid till wiped or dried. Heat also makes electrics become conductors; while water, being frozen, becomes an electric.

The electric fluid seems to be so generally diffused, as to enter into the substance of almost all natural bodies. Though insensible of its presence, we have it in ourselves; and the objects that are around us,

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and the ground that we tread upon, have their share, though we do not perceive it. In fact, it is so extremely subtile, or fine, as to escape the cognizance of our dull senses; and it is only detected in the phenomena and effects it produces, when being put in motion, it rushes from one part to another, in order to restore the equilibrium which has been interrupted. Thus it is with the lightning; sometimes it rushes from the clouds to the earth; at other times from the earth to the clouds, as well as from one cloud to another.

Similar effects take place in the electrical experiments of the philosopher. If he place us on a cake of resin, a piece of glass, or one of his stools, with glass supporters; by the interposition of these electrics, or non-conductors, between us and the earth, the communication between the electric fluid in our bodies and that in the earth is cut off. He says, we are insulated; and indeed, with regard to electricity, we may even be considered as clouds floating in the air. Under these circumstances, by means of his machine, he draws from us the electric fire in our bodies, and we are negatively electrified; or he charges us with still more of the fire, and we are positively electrified. If a person, standing on the floor, touch us at a time when we are negatively electrified, the fire will be drawn by our bodies from the earth, and rush through him, as a conductor; a spark will be seen and heard between us, which may be considered as a miniature representation of thunder and lightning; and both he and we will feel it. If he touch us at a time when we are positively electrified, the same effects will take place as before, excepting this difference, the fire will be drawn from us through his body, and pass into the earth; and thus the equilibrium be restored as before. By attaching conducting substances to the opposite side of electrics, and placing us in a line of communication between them, not only sparks will take place, as above, but shocks. These can be made so strong as to strike animals with instant death, and even to melt or calcine metals, or to restore them from their calces. By easy experiments, the electrical fluid is also drawn from and discharged into the clouds and atmosphere. The experiments, however, are dangerous, when not made with judgment; and, in one instance, proved mortal. At Petersburg, in 1753, an electrician having drawn the lightning into his room, and being about to measure it with an instrument, was struck dead; and his friend, at some little distance from him, was much hurt.

From the universal presence of the electric fluid, and from its effects, it has been concluded that it comes from the sun, the source of light; that it is, in a great measure, absorbed by the earth; that because of the continual succession of light from the sun, it is impossible it should remain here; that after it once enters the earth, it loses its natural form of fire or light, which it again recovers, in a transient way, under circumstances similar to those wherein the solar light burns; that is, in diverging from or converging to a point or focus, as in all the instances of lightning in nature, and of sparks and shocks in the use of the electrifying machine. That the sun, by its force, is continually emitting or shooting forth the solar light through immense space, gives that force and velocity observable in the motions of the electric

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first view, we might imagine all was in tumult, all in disorder, and the sea ready to swallow up the bark and the people ; but, on observing it still further, the waves are found to glide softly into each other, the vessel rises with an easy motion over their tops, and in a sea of this kind, even a small boat will live : this appears to be a sort of harmony in the waves, if compared with what sailors call cross going sea : at such a time the billows seem in conflict with each other, breaking themselves to pieces, and tumbling one another in tumultuous disorder ; sudden gulphs and abrupt precipices of water, with impending tops of foam, affright the mariner, and hideously deform the bosom of the deep, whose ruffled motion seems now altogether jarring and discordant.

There are few that have not sometimes amused themselves by throwing stones into the water, and observed that, when big stones are thrown in, its surface is agitated by large circular swells ; and when less ones are cast in, smaller waves spread also in circles. It seems not very difficult to conceive, if stones of different sizes are thrown in at once, their waves might either so fall out, as kindly mingling together, they might produce an agreeable motion, or discordantly clashing against one another, soon destroy each other's undulations. In these contrary effects observable in the water, there is perhaps something very similar to those invifible ones produced in the atmosphere by the different vibrations of harmonious and discordant sounds ; however, in the recoiling of waves from the edge of the water, there appears a pretty representation of echo.

55. *Circulation of Notes.*] We have already seen how a sort of circulation takes place in the changing soap-bubble, as it becomes of different thicknesses : in varying of sound, there seems also to be a kind of circulation of notes ; and, perhaps, if our senses were sufficiently delicate or fine to detect the analogy, we might discover the circulation of sounds and of colours to depend upon principles in creation akin to each other.

Musical instruments are superfluities, and often minister to dissipation : adopting these, however, instead of the voice, we may by them investigate something of the nature of sound ; and if the passion be not hereby hurt, perhaps the mind may be for a while rationally amused in contemplating this inexplicable part of creation the circulation of sounds.

If a musical string be struck, giving a certain sound, by rendering the cord or wire shorter or tighter, the sound becomes shriller or higher, till at length it seems, somehow or other, to give the same note it sounded at first, though it has continued still to ascend. If a flute be blown, or filled gently with all the fingers down, it gives a certain sound or note ; on lifting up these successively to the top, the notes ascend ; if the fingers are closed down again upon the holes, and disposed of in the same manner as before, with the blast increased, the sounds still continue to rise ; a third time they may be closed upon the instrument, and for a while lifted as before, the notes still growing higher by a forcible blast ; yet when the fingers are alike disposed, whether the flute is filled with a gentle, firm, or forcible blast, the

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notes somehow or other appear to be the same : it is true they are of very different heights, and naturalists have called them octaves to each other, from their having divided the intermediate variable sounds into seven distinct divisions. As we have already seen the variegated prismatic hue on the rainbow divided into seven distinct colours, one might think their divisions altogether arbitrary and artificial, but they appear to be natural ; and it seems remarkable, that the nations who have given themselves to the study of music, have discovered in it these distinct divisions of sound : the principles in nature upon which these distinctions depend, seem as inexplicable in philosophy as the laws which give to the several rays of light their different colours.

These divisions, or notes, seem mostly to accord with each other, or to produce a sort of harmony when sounded together ; one or two, however, are discordant with the rest, and, sounded with them, produce a horrid jarring ; these jarring tones are notwithstanding made use of in music, and serve to give a lively variety to that bewitching art. As in nature, or on the canals, the abrupt precipice, the broken cleft, the glaring light, or sudden shadow, diversify the landscape, and carry the eye with increased pleasure to the softer tincts and more gently flowing outlines,—so the harsher sounds in music seem, for a moment, to arrest the listening ear, and keep it in suspense, that it may be the more effectually surprised and delighted with succeeding sounds of melody. These effects may be easily observed ; and were it right to give a loose to the passions, and revel in the most joyous pleasures, the intoxicating effects might as easily be felt in their full force. We may guess at the causes of these surprising effects ; but, like the other parts of creation, they seem too fine for our gross senses ever fully to comprehend.

56. *Sound, Improvements.*] It is well understood that sound is produced by putting the air into an undulatory motion, and vibrating bodies ; as bells, &c. when struck in the exhausted receiver of an air-pump, or in vacuo, are found not to sound. Were the particles of the atmosphere as elastic as those of light, it should seem that sound would move with equal or greater velocity than light itself ; but a slight observation informs us the reverse is the case : If we observe at a distance any one striking with a hammer, or hatchet, we may see the tool ascend, after the blow, before we hear the sound from the stroke ; and in the firing of guns afar off, and the discharge of the electric fire in the clouds, we see the flash long before we hear the report, or the thunder.

But though sound does not move with the velocity of light, nor pass like it through transparent solid bodies, its impulse is sometimes felt where light does not sensibly come ; for instance, we may hear the company in the next room converse, though their fire and their candles be shut out from our view : and echo, from an opposite building or hill, while it surprises and diverts, shews that sound, like light, is capable of being reflected, and in the reflection it is found in some measure under similar laws : the study of phonics, while it has furnished the world with some intoxicating luxuries, it has also produced some useful knowledge, and instruments of real service to mankind. The

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undulation will be perceived in the surrounding air. It is difficult to conceive the cause of this phenomenon, without admitting of a peculiar fluid, which passes first from the body which heats to that which is heated, combines with the latter, produces these vibratory effects, and afterwards escapes to unite with other bodies, according to its affinities and the law of equilibrium, to which all bodies tend. When two or more bodies unite by the affinity of composition, their temperature changes: for example, water poured upon the sulphuric acid, expels the heat, and takes its place; and, while there is a disengagement of heat, the volume of the mixture does not increase in proportion to the bulk of the two substances mixed. This shews that penetration takes place, which cannot be explained but by admitting that the integrant parts of the water take the place of the heat or caloric, in proportion as it is dissipated. The rubbing of bodies together excites in them heat. In this case the caloric is expressed or squeezed out, in the same manner as water from a sponge: but the whole of heat, which may be produced by friction, is not afforded by the body itself; because, in proportion as the interior heat is developed, the external air acts upon the body, calcines or inflames it, and itself gives out heat during its fixation. Fermentation, and in general every operation which changes the nature of bodies, may disengage caloric, because the new compound may demand and receive a greater or less quantity. Hence it is that chemical operations produce sometimes cold, and sometimes heat. Heat is either in a state of liberty, in which case we are sensible of its presence, or in a state of combination, when it is latent or concealed. In the first case, it always endeavours to obtain an equilibrium; not that it is distributed equally among all bodies, but it is dispersed among them, according to the degrees of its affinity. Whence it follows, that the circumambient bodies receive and retain a quantity more or less considerable. Heat dilates or expands bodies; and on this principle the thermometer has been contrived: an instrument for measuring the degree of heat, fig. 41. The thermometer is generally a tube of glass, with a hollow globe at one end, filled with mercury, or some other fluid: according to the degree of heat, the fluid in the globe is expanded; and it consequently rises in the tube, which is graduated, and thus tells the precise degree of the heat.

Glass, being a fusible substance, can only be used to ascertain degrees of heat inferior to that which renders itself fluid; but there are methods of calculating the higher degrees of heat. Drops of water cast upon heated metals, are evaporated; and the hotter the metal is, the more slowly will they evaporate; noticing the time, therefore, of the evaporation, gives some information of the degree of heat. On the principle that the purest clay shrinks in the fire in proportion to the heat applied to it, the heat of the fire-place is ascertained by heating pieces of clay in it, and ascertaining, when cold, how much they are contracted. The quantity of heat in bodies may be determined by trying what quantity of ice they will dissolve in cooling. In the second case, heat is said to be true in chemical union with bodies, and its presence only manifested as these bodies pass into different states. Fluids, passing into the solid state, emit their latent heat, which immediately becomes

becomes free or thermometrical heat: thus it is that water on freezing, emits heat, and gives a warmth to the atmosphere; while, on the other hand, solids, in passing to the fluid, vaporous, or æriform state, absorb heat, which thus becomes fixed, neutralized, or latent: thus it is that the air becomes cool at the time of a thaw; thus, when the body perspires it is hereby cooled, the vapour absorbing the heat, and carrying it off; and thus almost all fevers end in perspirations, which, beside the advantage of expelling the morbid matter, possess likewise that of carrying off the heat, and restoring the body to its common temperature. On this principle is also founded the process used in China, India, Persia, and Egypt, and in the long journeys of the caravans, to cool water: it is exposed to the sun, or to a warm current of air, and the vapour carrying off the heat, it is hereby cooled.

46. *Light.*] Light has been thought to be a body or fluid subtle enough to pass through the atmosphere and all transparent bodies, in right lines. How this can possibly be, is inexplicable: and indeed one would have thought it an inconceivable idea. As shot thrown upon a heap of cannon-balls will find its way to the bottom in very crooked lines. So possibly may it be with the rays of light, in passing through transparent bodies; and, indeed, the present notion seems to be, that light vibrates through transparent bodies. However, the offering this conjecture, or indeed any other, to explain the subtle nature of light, seems attended with a thousand difficulties, which human sagacity will hardly remove.

Our idea of any kind of body or matter necessarily is, that it occupies space, and precludes all other bodies from that room which it holds itself. If we suppose a quantity of matter, as glass, the atmosphere, &c. made up of particles, with intervening pores, we may suppose the rays of light subtle enough to pass through the pores of such a body; but as in filtering of fluids, or sifting of powders, we suppose the cavities or holes to be filled up by the body as it passes through in the operation, it should seem we would naturally conceive the rays of light, in passing through a transparent substance, to fill up the pores. This, however, seems far from being the case with the inconceivably subtle emanations of light. The current of these as it passes along, appears capable of being dilated to any extent, or reduced to the smallest compass. By means of a convex glass, the rays of the sun can be brought together to act with such force, as even to melt metals; and by the intervention of a concave one, its beams can be so dissipated as scarcely to be felt. Rays of light seem also to pass freely through each other in every direction.

If a couple of lighted candles be placed on a table in a room, and half a dozen people sit down on the opposite side of the room, the two flames shall be distinctly visible to each of them. Now, if the eyes of the spectators and the flames of the candles be on a level with each other, the rays proceeding from the candles to impress the image of the flames in the eyes of the spectators, will obviously intersect each other in a variety of angles. It may be said, it is true, that though these rays somehow pass through each other, yet the objects are hereby rendered less vivid; that if one of the candles be put out, the

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other will be vastly more distinct; that thus the stars shine with a bright lustre in the night, which we could not distinguish when the sun casts around us the splendor of day.

It is remarkable, however, that when the rays of the sun are made, by an optical instrument, to converge to a particular spot with such force as to melt metals, that, however impetuous the torrent of light may be there, through that very spot which it would be instant death to get into, rays of light will pass freely from objects beyond it to our eyes.

It seems a strange property in light, that it refuses to pass through porous bodies; such as white paper and linen cloth; yet if the particles of these be brought close together by glazing, they assume a degree of clearness; and if their pores be filled up, by being wet, oiled, or varnished, they become very transparent. It is supposed, by the introduction of this new matter, the pores or cavities of the paper become filled, and the body being thus consolidated, the light has an opportunity of passing from particle to particle, through the whole substance, without the interruption of the cavities which were before in the way. It may be asked, Why do not the rays of light shoot across the pores which lie in the way? We may answer by another question: Why does not water immediately drop from the projected beam or stone, but rather follow the lower side of it, till it takes the wall? In fact, the stream of light, in passing through a medium, or transparent body, may follow the surfaces of the particles which compose it, through all their minutenesses, and, by their being uniformly close to each other, find its way through, in a more steady, easy current, than it could have done when the pores or cavities lay in the way. Transparency in bodies has been attributed, as already mentioned, to the vibrations of the electric fluid through their substance.

47. *Bodies, with respect to Light and Colour.*] If the eye be placed in the medium through which the rays pass to it, the medium is not seen at all; for instance, we do not see the air through which the rays come to our eyes: but if a pellucid body, through which the light comes, be at a distance from our eye, we see that body, as well as the bodies from whence the rays come, that pass through them to come to our eyes; for instance, we do not only see bodies through a pair of spectacles, by the transmitted rays, but the glass itself, by those rays which are reflected from its surfaces.

The beautiful colours of the rainbow appear visible, in viewing the several sorts of bodies; as in the luminous flames of a furnace, in stained glass, or in plain transparent glass of unequal thickness; and on the opaque iron of polished surfaces, after a certain degree of heat; on silks, feathers, &c.

Light seems to pass most naturally in right lines, and only deviates from these as it meets with interruptions from bodies that reflect, or that refract it in its course; and by the separation of its rays, present us with colours. Bodies, with respect to light, are accounted, 1. Luminous, or emit light from themselves; as the sun, fixed stars, or flames. 2. Transparent or pellucid rays of light pass through these; as the air, glass, &c. 3. Opaque or dark; these reflect the rays of light;

as specular bodies or mirrors; the moon, a wall, &c. But opaque bodies being made thin and close, become pellucid, the texture of transparent ones being disturbed, they become dark, heat makes them luminous: and to deprive luminous ones of heat, would be, in other words, to extinguish their light, or render them opaque. Philosophers say, the rays of light themselves are not seen but by them, the bodies from which they originally come, or the bodies from which they are reflected, that rays of light are of different colours, and that, in the sun's light, they are so compounded together, as to produce the fine tinct of day: that whiteness in bodies is but a disposition to reflect all colours of light nearly in the proportion they are mixed in the original rays; hence whited walls make the lightest rooms; on the contrary, blackness is only a disposition to absorb or stifle, without reflection, most of the rays of every sort that fall on the bodies: thus holes and fissures, which reflect no light, but rather swallow it up, impress upon us the idea of blackness.

All the different colours of bodies, or the different tincts of the rainbow, or of the prismatic spectrum, appear to be reducible to three primitive colours, red, yellow, and blue; whiteness being a general compound of these three; blackness, a privation of colour; and every other tinct being partial compounds of some of these. The effects of light are evidently very great, both in art and nature. The chemist perceives its influence in most of his operations, and finds it necessary to attend to its action, which modifies his results. Plants, deprived of this fluid, become pale: and when in hot-houses, the light comes to them from one part only; the vegetables incline towards the aperture, as if to shew the necessity of this beneficial fluid. Without the influence of light, vegetables would exhibit but one lifeless colour; by the interception of it, they are deprived of their beautiful shades; they are indebted to it also for their smell, taste, combustibility and maturity. Without light, the whole creation would be lifeless, inanimate, and dead.

It seems most natural, from our experience of things, to account the sun a globe of fire; but how is it supported, in giving out continually its light and heat? When we stand before a mirror, and see a reflection of ourselves, or in a situation where echo returns the words we utter, we find that sounds and reflections of visible objects can pass both ways at once, or meet without mixing; and may we not suppose that the light emitted from the sun returns in the same manner, when it has performed its office, to the place whence it came.

There are, however, who suppose that the sun does not emit the matter of fire, but that the principle which produces the effects of heat and warmth, was placed in and about the earth at the time of its first creation; that it has a constant tendency to recede from the earth, but that it is acted upon, and beat back again by the influence of the sun; that it is owing to this that it is warmer near the surface of the earth than it is in the upper regions of the atmosphere, where it is sometimes so cold, even in summer, that the rain freezes in its descent, and falls in the form of hail; and that the tops of some of the highest mountains are perpetually covered with snow, even under the line.

48. *Reflection*

48. *Reflection of Light.*] That light is reflected from different bodies, is obvious. Coloured clothes throw their hues on the walls they approach; and the mirror reflects the image of the object from its surface, in an angle equal to that in which it fell. Thus, fig. 2. standing directly before a plane or flat mirror, we are presented with a faithful picture of ourselves; standing obliquely, it is reflected obliquely, and may be received by another in another part of the room, whose image we shall likewise see at the same time. Thus, holding up a concave mirror before us, the hollow on every side takes up the object, and throws on the eye a face which may divert or affright us with its monstrous appearance. Turn the mirror to the sun's beams, the rays are by it converged to a particular focus or spot, where they act upon bodies with the fury of a furnace. On the other hand, hold up a convex mirror, the reflection of the face is a miniature picture. Turn it to the sun, the rays on no side will remit to the observer more than one mere spot of light, or very minute representation of the luminary, which even the eye may receive without danger or inconvenience.

49. *Refraction of Light.*] Thus obvious appear the laws of reflection. Those of refraction seem not to be so generally understood or regarded; however, there is hardly a child that has dabbled in the water, but what may have observed, with surprize, on plunging its hands or little play-things in the fluid, they have seemed to be broken, or very much bent. This is produced by what philosophers call refraction. They observe that light, in passing out of one medium into another, of different density, is broken in its course, or deviates from the line in which it first set out. Thus, if the candle be lighted, fig. 43, the part A, in the basin, will be enlightened by its rays; but the rest will necessarily be immersed in shade. If the basin be filled with water, without moving either candle or basin, the bottom of the vessel is illuminated; for the rays of the candle will then be refracted on their striking on the surface at S, and enter the water in the angle at C S B, instead of pursuing the straight direction they set out in. Thus the atmosphere, being a transparent body, as the rays of the sun fall obliquely on it in the morning, they are transmitted to us before it has actually risen; and, in like manner, in the evening, they shine on us after it has set below the horizon. If, in our experiment, the candle be removed, and the eye fixed at O, the part A, in the basin, when empty, will be visible; but the bottom will be hid by the edge next the eye. A sixpence, a halfpenny, or any small body, lying on the bottom, will be also invisible. If water be poured in, without altering the eye or the vessel, the bottom and the piece of money will both become visible; they will seem to the eye to rise in the fluid; for the rays, reflected from objects in the water, will be refracted on their striking on the surface, and enter the air in a direction different from that which they pursued in their course through the denser medium of water. This may account for the apparent distortion of bodies when dipt in a fluid; and from the principles of refraction and reflection, simple or combined, the variety of optical improvements have been derived. Thus, by adopting glass instead of

water, and varying its forms, a variety of curious effects are produced. In fig. 44, let C be a flame, G a glass, or lens, with its edge towards us; T a tablet or board, to receive the rays. The rays in *conc.* will be refracted in passing through the glass, and brought near together, or made to converge; in *plane* they will be refracted, and again resume their diverging direction. In *conv.* they will be refracted, and their divergement increased; and accordingly the tablets will be differently illuminated. In *conv.* the light will be collected to a small spot, appearing very bright. In *plane* it is spread over the surface of the tablet; and in *conc.* we may see a small portion of the rays faintly illumine the whole surface, while the rest diverge, or are refracted beyond the extremities of the tablet. Now, if we remove the candle, and fix the eye in the place which the flame occupied, those parts of the tablet which were before enlightened by the rays of the candle, will be visible to the eye; and the small spot on the tablet in *conv.* which before was illuminated, will, by its refraction, in passing to the eye, appear as much larger through its convex glass than the whole tablet in *conc.* does on the same principles through its concave one, as it received a greater share of the rays from the candle in the former experiment. In other words, it will fall in a greater angle on the eye, as may be seen by the lines which shew the course it takes in passing to the eye, as well as that of the rays in the experiment with the candle. The dotted lines represent the course that the rays would have taken if no lens had intervened.

50. *Formation of the Eye, its Illusions, &c.*] The eye is found to be an optical instrument, of exquisite structure, furnished with a variety of refracting mediums, comprehended under different surfaces; the orbit or cavity in which it is contained, is furnished with a loose fat, in which it rests or moves with great ease; and on the fore part, the white of the eye is covered with a fine membrane, called *conjunctiva*, which being reflected or doubled back from the ball or eye, also lines the eye-lids, thereby effectually preventing any extraneous body from getting in behind the eye in its cavity, as well as lessening the friction between the eye and its lids. The eye-lashes seem obviously designed for fanning off dust; and that which, escaping these, falls on the eye, is washed off by the water which continually flows from the lachrymal gland, in the upper part of the orbit; and which is nicely distiled over the smooth glassy surface of this optical instrument, by the closing of the lids, to keep it transparent, even when we are not conscious of doing it.

Fig. 45. The membrane T, which covers the apple of the eye, called, from its transparency, the *tunica cornea*, or horny coat, further extended, is opaque or sclerotic, forms the white, and serves as a case for the internal humours. Immediately under the *cornea* lies the iris, which in different people is of different colours; it has a hole P, in the centre, for admitting of light, or objects; this is called the pupil, or black of the eye. Where this is wanting, the surgeon's knife sometimes lays it open. Beneath this hole floats the crystalline humour C, of a roundish form, vulgarly called *the sight*, with the vitreous humour V behind it, and the aqueous one A before, to

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defend it from being bruised in rubbing of the eye, &c. The optic nerve N, from the brain, enters the back part of the eye, where, being expanded on the inside, it forms the retina R, as a fine web, to receive the picture or impression of the object; and this impression is what gives to us the sense of vision. Yet, essentially necessary as the crystal appears to be to vision, when a cataract has clouded the surface, the patient is couched; or, in other words, the eye is laid open; the crystalline humour being then taken out, the aqueous one fills up its place; and answering as a lens, gives sight to the blind; but this not refracting so strongly as the crystal, a convex lens is used to supply the defect.

The brow is not only a guard to the eye, but it serves also as a roof, to throw off the rain, and other light falling bodies. The advantage of our having two eyes is not simply a provision against accidents; they enable us to ascertain the distance of near objects with great precision; the object becoming as a focus of vision, upon which the eyes bear, varying their directions according to the distance. Hence, if we shut one eye, and the bow of a key be held up before us transversely, and within our reach, we shall find it difficult to put our finger through it at once, which we can do with certainty when both eyes bear on it at the same time: and hence, it has been found, that a fine horse, which has leaped over gates with great certainty, has, on the loss of one eye, so far lost its address in this way, so mistaken the distance, that it has sometimes come down upon the gate, and at other times fallen short of it.

Clumsy and confined are the instruments of art, if compared with this delicate and wonderful organ. They, it is true, help out the deficiency of sight. The microscope enables man to look far down on the minute works of the creation; and the telescope lifts up his view to the wonders of the firmament; but these are fixed to certain distances; one suits to measure the magnitude of a planet; another to examine the formation of an insect; but the eye wonderfully adapts itself to every distance within its own extensive sphere. Without distraction, it alike surveys the lettered page, lays hold on the extended landscape, and views the stars. In what manner it accommodates itself to these very different distances, seem not to be thoroughly understood by anatomists: it seems, however, to be the idea, that the eye becomes more flat in straining after remote objects, and more convex in prying into minute ones. In old age, when the eyes lose their fulness, become flat, or incapable of adapting themselves to look at minute objects, they find relief in the use of convex spectacles; while near-sighted people, on the contrary, having their eyes naturally fitted for viewing minute objects near at hand, have their vision extended to a distance by the help of concave glasses.

Every body knows, that too much light disturbs the eye; and that too little does not answer the purposes of vision. The efforts it makes to bear with the excess, and to accommodate itself to the deficiency, are not so generally noticed or known. In looking at a luminous body, as the flame of a candle, the pupil of the eye, or hole in the iris, becomes very small, to prevent too great an influx of the rays: on looking

looking at objects but faintly illuminated, and especially in getting into darksome places, the pupil is dilated, that it may the more copiously receive what little light the faint object or the gloomy situation may afford. If we look up at the sky, and then suddenly cast our eyes down on the ground; or if we look at the flame of a candle, and then beneath the table on which it stands, or on any dark object, a bystander may distinctly observe the visible contraction and dilatation of the pupil. Thus admirably does it adapt itself to the duties imposed on it; but this is not all that is wonderful in the organs of sight; to say nothing of the muscular fibres within the nice cord-like tendons behind, passed as through their pulleys, and helping to root the eye-balls in their sockets,—we may yet dwell with wonder on their internal structure; remark their seeming imperfections and illusions, and observe with surprize how we learn by experience to detect their deceptions, and derive just information from their errors or deviations. There is necessarily a hole in that part of the retina where the optic nerve, entering the eye, begins its expansion, fig. 46. This spot is incapable of receiving the impression of vision, as may be discovered by an easy experiment: If we close the left eye, and stretching out our arms, hold up our two thumbs before the right eye, still kept open, the thumbs being close together, they will both be visible; if we keep the eye stedfastly fixed on the left thumb, and at the same time carry the other one outwards, the right thumb shall, at a few inches distance from the left one, become invisible. Carry it farther distant, it shall again appear in view to the eye, still looking stedfastly on the left thumb, in its fixed situation. The experiment may be made with greater ease and nicety, by sticking up small pieces of white paper against a dark-coloured door, or dark pieces against a white wall; or by lighted candles, properly fixed, at greater distances than we can hold our thumbs; and fixing the eye proportionably farther off, this defect of sight, in either eye, is made up by the help of the other; for the objects which fall on the optic nerve of one eye, necessarily, from their construction, falls on a distinct part of the retina in the other. But our having two eyes, though it gives us more extensive vision, it seems, naturally presents to us illusions, which experience only rectifies. With whatever unity and precision single objects may appear to our direct view, this it seems is not their natural appearance. Naturally they appear double to us; and it is only the touch that has corrected the deception, and, in spite of appearances, told us the truth. Those parts of the retina immediately opposite the pupils, may be called the parts of direct vision; upon these we receive those objects our eyes most stedfastly behold; and however double the objects might appear in the beginning, the impressions they make there gives us the simple idea of singleness. It is different with the other correspondent parts of the retina; objects falling there we but faintly observe; and their impressions, though they appear to us double, are scarcely observed. An easy experiment, however, will shew that this faint illusion actually obtains.

If we fix upon an object on the opposite side of the room, suppose a candle, or a hat, and, between the object and the eyes, hold up a thumb;

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thumb; if we bring our eyes to bear directly on the thumb, the distant object shall faintly appear double; if we look directly on the distant object, the thumb shall seem as two.

Fig. 46. The images of objects are painted on the retina of the eye in an inverted position; hence some have imagined that children see objects upside down; and that this deception is corrected by the feeling, as they grow up. Others seem to have more consistently concluded, that we always see objects reversed; that in fact the sky and the ground are turned upside down to us, if the expression may be allowed; and that our other senses are accommodated to the illusion; that up or down, right or left, &c. are merely relative; and that all our sensations in the matter being relatively true, the reversion is without inconvenience, and the deception, in fact, amounts to nothing.

In opposition to this strange and seemingly absurd doctrine of the philosophers, we might, with the evidence of our own senses, and the common consent of mankind, venture to disbelieve their report, without fearing a general imputation of ignorance; and, in support of the common opinion, thus we might argue: If we imagine a person at some distance behind a wall, looking through a hole in it at a tree growing before it, we may readily conceive how it would be necessary for him to stoop, in order to see the top of the tree; and to raise up his head, in order to see the bottom of it. Were he outside, and so near the tree as to need a ladder to discover the top, he must ascend to see it, and come down again to observe the trunk; yet though he stoops in one case and ascends in another, to see the top or bottom of the tree, he has the same conception of its position in both cases.

If a traveller pass the hole towards his right hand, while behind the wall, he must move to the left, if he wishes to keep him in view; yet does he justly conceive that the traveller passes towards the right, though he had to move the contrary way to make the observation. Thus, as it is necessary for objects to be inverted in passing to the retina, the very reversion may perhaps give us the just information of their true position.

51. *Prismatic Rays.*] That colours are originally in the rays of light, is shewn by a variety of experiments. If light be received through a hole in a window-shutter into a darkened room, and to the hole there be applied a glass prism, as in fig. 47, the light shall no longer follow the direction in which it entered the room, but be refracted in its course, by passing through the prism; and the several coloured rays of light which, compounded together, produce the fine white tinct of day-light, shall be separated according to their different degrees of refrangibility, the red rays making the strongest effort to pass in a right line, shall be least refracted in passing through the prism; and the violet-coloured ones, being most easily refracted shall deviate the farthest from the line in which they first entered the room. If a tablet, or sheet of paper, receive the light after it has passed through the prism, the impression of light, or spectrum, on the tablet shall be of an oblong figure, variegated with colours, in the following order: The extremity of the spectrum, which receives the least refracted

refracted rays, shall appear intensely red, then orange, then yellow, then green, then blue, then indigo tincts shall succeed; and, lastly, the most refrangible violet shall terminate the other end of the spectrum. If the tablet be perforated, so as to let some of these coloured rays pass through it, an object held behind the tablet shall not be of the colour it appeared in the finely compounded light of day, but of that colour of the rays which are made to fall on it. In this way, the violet may be made to appear red; and the orange-coloured may-gold to assume the tinct of indigo. It seems, however, not to alter its colour without a struggle, wherein the rays lose some of their force. The colour thus imposed upon the object shall appear less brilliant than it would on white paper; but in its own coloured rays, the object shall appear of a more vivid hue than it does in day-light; the spectrum, however, produced by the prism is not coloured with seven different stripes, distant from each other; the gradations between the several colours are so fine, or the tincts are so nicely blended with each other, there is no such thing as a distinct division between any of them. The rainbow, produced by the sun-beams striking on the falling drops of rain, being there refracted and reflected to the eye, the rainbow is on the same principles of the same variegated hue with the spectrum. In like manner, the same colours are produced by blowing globes with soap and water; and it is remarkable, that when one of those bubbles has been blown in the basin, and let to remain till the water subsiding from the top, it at last becomes so thin as to burst, then successively appear different colours at the top, which, spreading on all sides, fall to the bottom; the least refrangible colour, red, first makes its appearance; after this a blue emerges; red appears again; afterwards blue. Thus, at different thicknesses, in its throwing off the several orders of colours, the least refrangible still continue to be reflected first; then those that are less so, for several times, till it gives a greater variety of colours, as yellows, greens, purples, &c. at last, becoming so thin as scarcely to reflect any, it looks black, and the bubble bursts. From these observations, some curious experiments have been made, and some ingenious conclusions drawn; that colour in bodies must depend upon the size and density of their particles. An analogy has also been imagined or discovered between colours and musical notes; or between the refractions of light and the vibrations of sound.

In considering the properties of magnetism and electricity, of heat and of light, we have seen how evasive these fluids (or perhaps, rather, these modifications of the one fluid of fire) are of our researches, and, consequently, how hypothetical the theories formed on these subjects must ever be. In contemplating the grosser fluid of air, we may expect to meet with more certainty; yet here we shall discover wonders perfectly inexplicable.

52. *Atmosphere.*] The air, which on all sides surrounds our habitable world, is found to be an elastic fluid; its density or gravity therefore will be very different at different heights; as in fleeces of wool piled one above another, the lowest will be much compressed, while the highest remains in its full state of expansion: through its

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extreme elasticity, it is liable to be put in motion from numberless causes.

Different degrees of heat and cold contract or dilate this fluctuating body, and produce the variety of currents, from the gentle gale to the dreadful tempest and rapid whirlwind.

By the strokes of hammers, and the vibrations of strings in this element; by its being thrown out of certain cavities, and modified in its passage; as in the voice and wind-instruments of music, it receives an undulatory motion, and fills the cavities of the ears with its vibrations, which echo to the mind the bewitching melody of musical sound, or fill it with pain, by the unkindly jarring of discordant vibrations.

53. *Music, and its Effects.*] The child may, with an undescribable and secretly pleasing satisfaction, practise its little fingers in grasping and turning, in a thousand ways, its smooth and glassy coral; old age may find a fainter, but similar amusement, in handling at leisure the time-worn smooth head of his walking-staff: some may with a degree of pleasure hang on a perfume, and others delight in the more substantial enjoyment of a feast; the variety of beauty, the *contour* and *relievo*, or the form and colouring may captivate the eye, and afford a delight; the gloomy scene may impress a degree of melancholy, and the lively prospect animate our spirits; but of all the powers in the natural world, the airy magic of music seems most to triumph over the passions of mankind. Naturalists have considered dissimilar formation in the organs of hearing as the cause of what is termed an unmusical ear; they have thought that a person of such condition does not hear alike with each ear; and perhaps there is no one living whose organs of hearing are perfectly formed, can declare himself entirely free from the dominion, or unsusceptible of the powers of music; in fact, all nations seem naturally pleased with it: its charms have been romantically described as capable of softening rocks, and bending the knotty oak; and fabulous history has not failed to tame wild beasts, build up cities, and a thousand extravagancies, by the sounds of the lyre.

However, without giving weight to these fictions, and without going back to the days of the antients, the effects of modern music upon some may fill us with wonder; whether we observe it thrilling them into softness and effeminacy, or bracing up their nerves, and rousing them to action; working them up to revel in the noise, or enter with ardor on feats of danger; and, what might make humanity shudder, steeling their hearts, to rush without remorse on the bloody carnage of their fellows, amid the tumultuous horrors of war.

If such be the effects of music upon the passions, how dangerous then must it be to tamper with so fascinating or alluring a thing! and how easily may we be made to imagine that we feel all the kindly train of gentle emotions or of noble sentiments, and even devotion, when in fact our weaknesses are only imposed on by the melody of sounds, and when the intervention of disagreeable sounds would prove our happiness

ness and our affections to be unsubstantial and imaginary ; nay, even awaken in us the most turbulent and tormenting passions.

Not only man seems susceptible of the powers of music ; birds serenade and solace their mates with their melodious warblings ; the dogs animate each other in the chase with their mutual cries ; and even inanimate bodies, fitted for producing sound, as bells, the strings of instruments, &c. when a note is struck according with their own, they join the chorus, and also sound. Those animals that have submitted to the reins, are encouraged under toils by the voice of the driver ; and animated by shouts, on the precipices of lofty mountains, with riders on their backs, perform feats of desperate address and wonderful agility ; as, on the Alps and the Andes, the hardy and artful mules, sliding down frightful steepes with an insinuating and steady motion, when fear in the rider, and ill-timed efforts to save himself would throw the artful creature off its bias, and they would both be overturned, and dashed to pieces in the fall.

Indeed noise alone seems naturally to have a great effect on the spirits of animals, and especially of man. Without much reasoning on causes and effects, the rollings of thunder fill him with awe ; the winds sweeping over the hills, or whistling through the crannies, bring on him a pleasing delirium of melancholy, while the distant sounds, which associate with them the idea of company, naturally cheer him.

54. *Melody, Harmony, Discord.*] According to the language of musicians, melody may be defined a pleasant and agreeable succession of sounds : Harmony, the sound of different notes at the same time, which accord with each other. The former appears to have an origin immediately in nature ; it prevails in some degree in all languages, and in a very high degree in the Chinese, where words vary in their meaning according to the tone or note wherein they are founded. Melody formed the music of the antients ; and as this was most simple or natural, its effects were most wonderful : to this the moderns have added harmonics ; these have been accounted of Gothic descent. It is remarkable, however, they were found in the music of those sequestered people, the natives of the South Sea islands. Discord is the sounding together, or indeed in succession, notes that jar with each other.

How it happens that sounds jarring with each other disturb with their discord, while others naturally please with their melody, seems beyond our conception ; perhaps, however, if we could but detect the similitude as it waves along, we might observe, in the varied undulations of the water, a clumsy representation of the vibrations that, in the rare medium of air, impress upon us these different sensations.

Those who have much noticed the fluctuation of the sea, must often have observed it agitated in various ways : sometimes swells of amazing extent arise, and moving along, heave up its smooth and glassy surface in large but easy undulations ; mounting up upon these, or gilding down their sides, waves of a less size at the same time pass along, and with unceasing motion diversify the face of the waters. At first

electric fluid; and that it is wholly owing to the pressure being lessened in particular parts that the phenomena and effects of lightning are produced; for, that in this case, the electric matter is pressed to the part where the violation or interruption of the equilibrium takes place, with the impetus or momentum by which the light emitted from the sun. That the electric fluid, like the atmosphere and other fluids, is susceptible of two different kinds of motion, viz. a vibratory one, similar to sound in the air or waves in the water, arising from agitation; and a progressive one, similar to winds and streams; that while it passes progressively through, or more commonly along, conductors with immeasurable velocity and force, and stops at the electrics or non-conductors, these latter are notwithstanding, penetrable by the fluid, but that its motions through these are generally of the vibratory kind; that the electrics, for instance, glass and the air, are substances into which the electric fluid is very apt to enter; that positive and negative electricity are only different motions of the fluid, the positive being a motion outward, and the negative a motion inward; that while the vibratory motion acts in electrics, and thus hinders the electric fluid from rushing through them at once, it yet admits a slow passage of it; and it is the excitation of this slow passage or motion only that produces all the phenomena of lightning and electricity. When on different sides of a piece of glass, or on different sides of a portion of atmosphere, for instance, the different kinds of electricity negative and positive take place, the equilibrium which the continual pouring forth of light from the sun tends to keep up, is interrupted. When the two opposite sides are connected by conducting substances, the fluid rushes from the positive to the negative part, to restore the equilibrium. The inequality or want of equilibrium could hardly exist for a moment, were all bodies electrics or non-conductors; and were they conductors, it would scarcely be perceivable; so that the presence of both an electric and non-electric seems necessary for the production of the phenomena of lightning; and in art, it is by the rubbing of electric and non electric substances each against the other that electricity is generally produced.

Electricity seems to bear an active part in all the various departments of creation; and electricians have not failed to consider it as the chief agent employed in producing all the various phenomena in nature. According to these, the electric fluid is the first principle of motion in the universe, the fixed stars are so many foci of action, communicating electricity to their surrounding planets; it passes from one part of creation to another, pervades the most distant regions of space, produces the attracting, or gravitating, and centripetal forces, and thus regulates all the motions of the spheres. Descending to our own atmosphere and earth, it is the cause of magnetism, and of all the meteors. Transparency in bodies is produced by the vibratory motion of this fluid through them; hence the waters of the ocean are sometimes unusually clear before a thunder-storm, at which time the clouds, when deprived of the electric fluid, lose their transparency, and become dark. Light itself is no other than the electric fluid in a vibratory motion; and what we call electricity, is the same fluid in a stagnant state, or else disposed to run from place to place. If, by its motion, it augment that

of light, heat is produced ; if it impede the motion of light, it is cold. Thus, both the fiery and cold meteors are equally under its influence ; the hail and snow, as well as the lightning ; the winds also, as well as the auroræ. Thus it regulates the heat of the different climates ; darts through the regions of atmosphere, and through the solid earth, with equal velocity, when it meets with conductors ; and thus accelerates, or produces, in an instant, the dreadful tempest, or more dreadful earthquake.

From the circumstance of finely powdered resin assuming the figure of stars, and beautiful ramifications, on being sifted on an electrified plate, they have considered electricity as the cause of crystallization ; and it has been thought that this is an incipient, or imperfect vegetation ; that, as it flashes into the form of branches in the open air, so, in its passing through vegetables, which it is supposed perpetually to be ; penetrating, cherishing, and unfolding them in their growth, it pushes or draws out the fibres into the ramifications of root and branch ; that its influence is very great in the animal economy ; and that it is owing to this that several tribes of insects shine in the night. There are fishes that have the power of giving a shock from their own bodies. Some have been so much electrified naturally, as even to give signs of it when a nice or quick electrometer has been applied to them ; and others have manifested an extreme sensibility of electricity, inasmuch that they would be affected by a flash of lightning, though so remote that the thunder could not be heard.

Streams, sparks, and shocks are all applied medically to the human body, and have been thought to be very efficacious in removing obstructions, and in rheumatic, paralytic, and inflammatory cases ; but the most certain or unequivocal appearance of advantage derived to man from the study of electricity, is the protection from lightning, which he obtains by means of iron (or what is still better, copper) rods raised above the highest part of his house, and extending along the outside down into the ground. With such provision he and his family sit in security, and hear the thunder rolling over their heads. If the lightning strike upon the house, the metallic rods receive it, and it is hereby quietly conducted in a stream into the earth.

The most usual acceptation of the word fire, comprehends heat and light. These two principles appear to be very distinct in their own nature, because they are scarcely ever proportional to each other, and because each can exist without the other : for instance, the inside of an oven, quite dark, may be very hot ; and the weather may be very cold, yet the light even increased by the snow on the ground, though in the most intense degree of either, the other seems always present in the same proportion.

45 *Heat.*] Heat has, heretofore, been defined to be a very brisk agitation, or an intestine motion of the particles of the bodies, which we denominate hot : and cold, a cessation of that motion : but philosophers seem now agreed in accounting heat a real substance, which, combining with bodies, gives particles that agitation or intestine motion. If we attentively observe a body, during its cooling, a slight movement or undulation

the ear derives aid from the simple contrivance of a hearing-trumpet; and by help of the speaking-trumpet the mariners are enabled to cheer and diversify their tedious voyage, in hailing each other when they meet on the ocean, when without such an instrument, the noise of the waters, or the distance of the vessels, would have necessarily shut them out from the pleasure of the salute, and the benefits they derive from the mutual information.

It is said, that Dionysius, the tyrant of Sicily, had a prison built with a secret aperture, and a passage leading from it in the shape of an ear; that here he used to lurk and listen to the most private whispers of the poor unhappy and unsuspecting captives.

The cathedral in the city of London furnishes a proof that the vibrations of whispers, however faint, when dispersed abroad in the air, may be so collected together as to surprise and disturb with their noise. In the dome of that stately building there is a circular gallery that sweeps round the concave. Strangers, on entering this part of the building, are struck with surprize at the grandeur of the scene which art has produced. When the first moments of astonishment are over, the whisperer directs the curious to walk round the gallery, and take their seats opposite to him; he turns about, and whispers to the wall, his whispers on each side sweep round the dome, and dash together amidst the listening strangers with a noise which, though expected, hardly fails to surprise, or suffers the whispering gallery to sink in its fame.

Perhaps the time may come when the places designed for public audience will be nicely laid out on philosophical principles, so that a feeble voice may be distinctly heard by thousands of people, and mankind may wonder, as they have often done, that their predecessors so long neglected the obvious improvement.

Though the air is a body which escapes our sight, we every moment have proof of its existence without the help of sound; the aerial fluid, surrounding on all sides our habitable world, insinuates itself into the pores, and mixes with the substances of the variety of bodies. Without this great necessary to life, the several tribes of living creatures cannot subsist; even the mute tenants of the water, and the minutest insects cannot live without it; and vegetables, deprived of this vivifying element, cease to grow, become flaccid, and die; without it, fires soon go out, and even gunpowder will not explode in vacuo, or in a receiver exhausted of air.

57. *Weight of the Atmosphere.*] That the atmosphere has body, is obvious from the force of the wind; and that it also gravitates, or has weight, clearly appears from light bodies, as smoke, clouds, &c. floating in it. A glass globe, when exhausted of air, weighs lighter than before. In fact, the atmosphere is found to press upon the surface of our globe with a weight equal to that of a sea of quicksilver, surrounding the world 29 inches deep, or one of water 30 feet deep. Philosophers seem to have derived this information from the observations they have made upon pumps. If a pump be inserted in a cistern of water for pumping it off, the piston or box, on being drawn up, would make a vacuum in the hollow of the pump; but the atmosphere pressing

ing on the surface of the fluid, it is thus forced up by the weight of the air to fill up the vacuum; but when the water beneath the box is raised in the pump thirty feet high, the column of water being equal in weight to that of the atmosphere pressing on the surface of the fluid, they necessarily then balance each other, and the water rises no higher. In like manner, mercury may be raised twenty-nine inches, and then it, on the same principles, ceases to ascend; but the force necessary to raise the fluids to their utmost heights in tubes of a given diameter, suppose an inch, is easily ascertained; and that force, or a weight of air equivalent thereto, every inch of our bodies must necessarily sustain; hence the load of air which presses on the surface of an ordinary man's body, is equal to forty thousand pounds weight. Thus, were it not for the air within us, we should be crushed to pieces by this load of air; and, were it not for this external pressure, we should burst to atoms, in the internal air taking vent from our bodies. The air is not always of the same density; and its changes, in this respect, sensibly affect our bodies; they are braced strong and vigorous when the air presses forcibly upon them; and when the air is light they are languid, relaxed, and feeble. To determine the weight of the atmosphere, the barometer has been contrived, fig. 48. This instrument is simply a glass tube, about thirty inches in height, closed at the upper end, and filled with mercury, with its open and lower end inserted into a cup of mercury; or its lower end may be enlarged to a ball or bottle, and turned up in place of the cup. Now, when the air is so heavy as to keep up the clouds and give us fair weather, it presses on the quicksilver in the bottle or cup, and forces it up to a good height in the tube; and when the rain must descend, through the atmosphere's becoming too light, the pressure on the quicksilver in the cup decreases, and the barometer, or the quicksilver in the tube falls, and thus predicts the changes in the weather. This instrument is also used in measuring the heights of mountains: as the air becomes lighter the higher we ascend in it, so the higher the barometer is taken up, the more the quicksilver will necessarily fall; and where the acclivity may be so rude and irregular as to forbid the application of a mathematical apparatus, this instrument, by the fall, will tell pretty exactly the height ascended: it sinks about the tenth of an inch for every ninety feet we ascend, or an inch for three hundred yards. Such is the elasticity of the air, that what is contained in a nut-shell, may easily, with heat, be dilated into a sphere of unknown dimensions. On the contrary, the air contained in a house, may be compressed into a cavity not larger than the eye of a needle.

58. *Height of the Air.*] The height of the atmosphere above the surface of the solid earth, is not certainly known. From the refraction of the rays of light from the celestial bodies, in passing to our world, it has been concluded that it reaches but to a small distance in the intermundane space. When it is considered, however, that the air which we live in is near a thousand times lighter than water, and that the body of air surrounding the globe is equal in weight to an ocean of water, which would cover the world about thirty feet deep, it must necessarily seem to be some miles in height; but when its extreme elasticity is remembered, and how sensibly it grows lighter the higher we

ascend,

ascend, we may perhaps reasonably conclude, that it reaches several hundreds of miles from the earth's surface, and even suppose that it may be possible that the air, in its sublimer regions, divested of those gross vapours and exhalations which arise from the earth, may be thus refined into ether, light, or electrical fluid, and fill the immensity of space that surrounds us.

59. *Meteors.*] The atmosphere, which we breathe, appears to be one of the most compounded bodies in all nature; it has been considered as one large chemical vessel, in which an infinite variety of operations are continually performing. As organized bodies, we see, receive of this general store, so also they are found to furnish their copious supplies: plants and animals, earth, waters, and minerals, from their secret beds, are found to emit their several vapours or effluvia, which, mixing in this vast alembic, float a while in common. In this great and general mixture, found so absolutely necessary to the support of all living things, all other bodies are found to decay: exposed to its influence, liquors lose their spirit; cloths their colour and firmness; metals rust, and stones in time moulder away. In this great theatre the meteors make their appearances, and act the part allotted them in the works of creation; here is collected the gentle dew and hoar-frost; here clouds are gathered and carried along by the wind, to refresh the earth in falling showers, give rise to rivers, spread vast inundations of water over the fields, or lay them under a covering of snow or hail; here mock-suns, mock-moons, halos, and rainbows make their gaudy but transitory appearance; and here the water-spout, dreadful to the mariner; here rolls the dreadful thunder, here lightnings dart their vivid flames, and sometimes, striking upon the earth, destroy its productions, fill its inhabitants with terror, and sometimes strike them dead; here the *auroræ*, or streamers, the *ignes fatui*, or wandering fires, called also Jack with the Lantern; here falling stars, as they are ignorantly termed, or fiery balls, of various sizes, appear with splendor during the gloom of night, and astonish mankind, who too often seem willing, with superstitious awe, to find portentous omens of dire calamities in these curious phenomena, rather than investigate their causes or discover their uses.

Enough has been said on our compound atmosphere, to shew that it may contain in itself ample materials for producing all the various phenomena of the meteors.

Dew is that vapour which the warmth of the day had exhaled from the earth, but condensed into drops by the cold of the night, falling by their weight; and hoar is this vapour in a frozen state: clouds are mists or exhalations raised on the same principles, and collected in the air; rain is the cloud condensed into drops, falling by their weight; hail is the drops, frozen in falling; and snow is the less compact cloud, frozen before it fell. Parhelii, or mock-suns; parsalenes, or mock-moons; halos, or the coloured circles that surround them, and which, though always confined to our atmosphere, sometimes seem also to surround the real sun and moon, and the other heavenly bodies; the beautiful iris, or rainbow; these gaudy meteors are all produced by the rays of light falling on clouds, mists, or rains, and being reflected and

refracted to the eye. The ærial, or watery meteors, are often seen with delight; those of the fiery kind assume a more splendid and even a terrifying aspect; it is not every one that is able to look coolly on them. The thunder and the lightning fill the philosopher with awe, while the fluctuating streamers, and the transient blazes of inflammable vapours, strike the superstitious with dread of future calamities. Lightning is found to be a flash, produced by the electrical fluid rushing from one part into another; and thunder, the sound of the rushing torrent, reverberated among the clouds. The fiery balls, which are seen shooting through the atmosphere in the night, of various magnitudes and different forms, seem all to rise from inflammable vapours, taking fire from their fermenting or effervescing in the air.

In the transitory meteors, making their sudden, gaudy, and unsubstantial appearance, we see a lively picture of all natural things. As the meteor flies through the air, spreads its long and gilded train, and is soon dissolved to common air again, so it is with us, so with the most superb monuments of art, and so with the grandest scenes of nature. Wherever we turn our eyes, all appears unstable, all in motion, and to the general circulation the most durable bodies seem to owe their origin; stones and metals seem to be concretions of soft substances, and both are found to rust or moulder away; plants and animals soon arrive at maturity, and as quickly hasten to their dissolution.

60. *Partial and noxious Vapours.*] As the atmosphere is found to be a general compound, so from accidental causes in particular places, the mixture is often partial; different supplies of vapours and exhalations from animal, vegetable, mineral, and other substances, and different degrees of heat and cold, all tend to affect this element. As any of these singly prevail, they generally render it unwholesome and inconvenient for respiration; but, as they are mixed together, they neutralize the obnoxious qualities of each other, and become salubrious to the constitution.

In mines, where the air has not an opportunity of circulating, it becomes charged with particular vapours or exhalations, which are often found mortal: these are strangely diversified, both in their appearance and effects.

Some resemble, in fragrance or smell, the pea-blossom in bloom, and hence have their name; others shew their approach, by lessening, and at last, putting out the flames of the candles, and thus give the workmen an opportunity of escaping (the fulminating damps strike down all before them, like a flash of gunpowder); and a fourth kind, more deadly than all the rest, being by accident set free, rushing out from the place where they have been long confined in old mines, instantly stifles those they overtake.

In some mines the workmen breathe without any apparent prejudice to their health; yet if a lighted candle be introduced, the whole cavern at once becomes one furnace of flame. By a very peculiar contrivance, a sufficient light for these gloomy operations is supplied with safety: this is by means of a great wheel, the circumference of which

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which is beset with flints : this being turned, the flints strike against steels placed at the extremity, and thus a stream of transient sparks of fire is produced : in others, the workmen use only wooden instruments, and are cautious not to enter with nails in their shoes, as a single spark struck by collision, or in the manner of flint and steel, would set the whole mine in a blaze ; yet here lighted candles may be used with convenience and safety.

The surface of the earth, and its inhabitants, seem much affected by what is going on beneath in the mine ; mineral exhalations, by their corrosive qualities, often destroy vegetation, and taint the air ; from stagnant waters also, from luxurious soils, from the sea itself, when not sufficiently agitated, especially in hot climates, the air is often rendered unwholesome ; but from diseased and putrid bodies of animals, the most subtle and noxious effluvia seem to arise. Compared with these, other vapours seem gross and heavy ; these fly everywhere, penetrate everywhere, and the vapours that fly from a single diseased person, soon render it epidemic. The plague is the first upon the list in this class of human calamities : it seems, however, during the last age, to have abated much of its violence, even in those countries where it is most common ; but diseases, like empires, have their revolutions ; and those which, for a while, were the scourge of mankind, sink, unheard of, to give place to new ones more dreadful, as being less understood. As, in the bowels of the earth, there is a variety of operations continually carrying on, far remote from the observation of man, which notwithstanding affect the atmosphere he breathes with their subtle exhalations, it has been thought that the temporary disorders, with other calamities which we can neither foresee nor prevent, may be elaborated in those secret recesses, and have their duration, while the subterraneous process is going on.

61. *Analysis of Air.*] While the atmosphere, heretofore considered as a simple element, or homogeneous fluid, is found to be a truly chaotic mass, which we may consider as a vast laboratory in which the meteors are prepared, in which all the seeds of life and of death are developed ; in which are found the elements of the composition of all bodies, and to which their decomposition returns the same principles ; while the atmosphere is found to be so heterogeneous a compound, the latest discoveries in chemistry seem to shew that it is reducible to two principles or constituent parts, and that the others are rather adventitious than necessary. These principles, or elements, are gases, and are called oxygene and nitrogene. Nitrogene is that part of the air which is respired from the lungs ; oxygene is the part absorbed in the lungs, for the support of life. Plants imbibe air : they cannot live without it ; but it is the nitrogene which is necessary for their support : they emit or respire the oxygene. It appears, therefore, that the animal and vegetable departments labour for each other ; and that by this admirable reciprocity of services, the atmosphere is continually repaired, and an equilibrium maintained between its constituent principles. Nitrogene gas is so called, from its being the radical of nitrous acid : it is also called mephitic and azote, from its property of depriving animals of life : if breathed alone, it suffocates them.

Oxygene has its name from its acidifying property; for it appears that every acid is a combination of this gas, with some elementary substance or base. It has also been called the air of fire, because combustion never takes place without it; and vital air, because it is the only gas proper for respiration. The most intense heat is produced by burning bodies in it; hence an iron-wire, bent in a spiral form, and having any combustible substance (even a piece of tinder) attached to its lower end and set fire to, on being plunged into it, is gradually melted with a most brilliant flame, and falls in drops. The light of glow worms is so beautiful and bright in oxygenous gas, that one single insect affords light to read very small print; and the breathing of vital, instead of common air, affords the most comfortable relief in phthical cases.

The mixture of about seventy-two parts of nitrogen gas, and twenty-eight of oxygene, forms this fluid mass in which we live. The characteristic properties of vital air are modified by those of nitrogen gas (and these modifications even seem to be necessary); for, if we were constantly to respire vital air in its state of purity, it is thought it would quickly consume our life. Perhaps, however, our days would be more easy and cheerful; we should be capable of greater efforts in a given time; and we should live quicker.

62. *Analysis of Water.*] Water, which has so long been considered as a simple element, is found to be like the air, a compound of two different principles. It is formed by the combination of hydrogenous and oxygenous gas. Hydrogene has its name from its property of producing water; it is also called inflammable air, from its property of burning or exploding with vital air. It is not proper for respiration; yet it has not the sudden mortal effects of nitrogen. In the formation of air, oxygene is little more than a quarter of the compound, the rest is nitrogen. In the composition of water, hydrogen is not one-sixth part of the fluid, the rest is oxygene. The nitrogen gas is nearly as heavy as the oxygene; the common air is about twelve times the weight of hydrogen.

Water is contained in bodies, in a greater or less quantity, and may thus be considered in two states: it is either in the state of simple mixture, or in a state of combination. In the first case, it renders bodies humid, is perceptible to the eye, and may be easily disengaged; may be evaporated or frozen. In the second, it exhibits no character which shews that it is in a state of mixture. It exists in this form in crystals, salts, plants, animals, &c. Water existing in a state of combination in bodies, concurs in imparting to them hardness and transparency. Salts, and most stony crystals, lose their transparency when they are deprived of their water of crystallization. Some bodies are indebted to water for their fixity. The acids, for example, acquire fixity only by combining with water.

Under these various points of view, water may be considered as a sort of general cement. The stones and salts, which are derived of it, become pulverulent; and water facilitates the coagulation, reunion, and consistence of the particles of stones, salts, &c. as is seen in mortar, lutes, &c.

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Water, when disengaged from its combinations, and in a state of absolute liberty, is one of the most considerable agents in the operations of this globe. It bears a part in the formation and decomposition of the various bodies in the mineral department: it is necessary to vegetation, and to the free exercise of most of the functions of animal bodies; and it hastens and facilitates the destruction of these bodies, as soon as they are deprived of the principle of life. Such is the chemical description of this fluid, since such distinctions are made, that we may now consider it physically and mechanically.

63. *Properties of Water.*] Water, whether we view it as it diversifies and gives coolness to the landscape, or observe it in vessels for domestic purposes, always, when undisturbed, presents a smooth and even surface; this seems its first and most striking appearance; and, indeed, when put in motion, from any external cause, even its waves seem as so many efforts to recover its level, or, to speak precisely, its spherical surface, agreeing with the form of the earth, and immediately caused by the attraction of gravitation. On this property in water depend the several laws in hydrostatics, *e. g.* If a ship, boat, or tub, or any other body, be placed in the water, it necessarily puts a part of the fluid out of its place; but the water, in its efforts to preserve its own level, shall suffer no more of itself to be displaced than is equal to the weight of the body. If the body be wholly immersed, without displacing its own weight of the fluid, it is heavier than its own bulk of water, or specifically heavier, and consequently sinks. In lifting such a body, while in the water, it will be as much lighter than it was in air, as the water it has displaced is heavier than the same bulk of air. Thus, in a hydrostatic balance a good guinea loses less of its weight, on being immersed in water, than an adulterated one; which being less dense, and, consequently, taking up more room, necessarily displaces more of the fluid, and, consequently, loses more of its weight, on being tried in the water. If a body displaces its own weight of the water without being totally immersed, it is lighter than the fluid, and will consequently swim; and a ship with its loading of the heaviest articles, or a vessel of heavy metal, as a silver cup, with its contained air, answering this latter description, does, on the same principles, necessarily swim. In a pipe of the form of the letter U, for instance, if water be poured in at one arm to a certain height, it will rise to the same in the other; this may shew how cities are supplied with water by tubes, and how it rises to rooms above stairs. If we reverse the pipe, already filled with water, and put one arm down into an empty hoghead, the other into a contiguous one, full of water, this will set a running through the pipe into the empty one, and continue thus discharging itself till the fluid is on a level in both the vessels. This may shew the nature of the syphon: in this experiment the water might rise about thirty feet in the pipe, if it were long enough, the weight of the atmosphere on the surface of the earth being incapable of keeping it up higher; in the other, if practicable, the tube might sink to the centre of the earth; and may reach even to our antipodes.

The pressure of water against the sides of the cavity which contains it, whether tub or vessel, or a valley of the earth, is as the height of the surface of the fluid above the part, and not as the extent or quantity of the waters; hence, even children, in their play, will sometimes with stones, weeds, and sand, bank out the waters of the sea, till the tide, by a slow but steady rise, having gained the summit of their sandy little citadels, at once overflows them; and hence, were it not for the motion and violence of the waves, as slight a bank might sometimes prevent the waters of the sea from deluging a whole country, as that which confines a pond of the most trifling extent. Hence, on the other hand, the addition of a single gallon, or any small quantity of water, applied in a particular manner, might be made to burst an hoghead, or to raise a prodigious weight, as effectually as many hundred gallons.

If, in the top of an hoghead filled with water, there be inserted a pipe of small dimensions but considerable height, and water be poured in at the top of the pipe to any certain height, the bottom and sides of the vessel will be as forcibly pressed by this small addition of the fluid as if the vessel had been continued in its full dimensions, and filled with water to the same height. If a huge piece of timber lie in a ditch, just large enough to receive it and a little water; on this being poured in, the small quantity of the fluid that the ditch can receive, will as effectually float it, or bear it up, as all the waters of the largest lake.

If a tall and narrow vessel be filled with water, and pipes be inserted in its sides at different heights, the force of the water spouting out at these pipes will be proportionably great as it is distant from the surface of the fluid; and if similar pipes be inserted, in the same manner, into the most extensive reservoir, the very same effects will take place, without increased force, whether their pipes be horizontal or bent, to spout the water upwards and downwards.

The very curious property of water, pressing only according to its altitude, and the extent of the surface where the pressure falls, is also in the air and the other gravitating fluids, though the effects may be more commonly observed in the water.

Fluids differ in their weights or densities; spirits are lighter than water; strong spirits than weak. To determine the force of spirit, or the lightness of fluid, the hydrometer has been contrived. It is a hollow ball, with a weight at one side to sink it, and a tube, marked with degrees, standing up on the other: now, according to the strength of the spirit, the instrument will sink, and the fluid will wet or mark the degrees on the outside of the tube accordingly. Fig. 49.

64. *Solidity and Force of Water.*] Water, however soft and yielding it may generally appear, is found to be a very solid body; bullets fired obliquely on its surface, become flat, or are broken in pieces, as if fired against stones; and boards, on being thrown on it, sometimes are broken; and it is hardly sensibly compressible into less room than it naturally occupies; hence this subtle fluid, on its being pressed forcibly in a hollow globe of gold, by means of a screw, has been found to ooze through the pores of this densest of all metals, and settle on its surface.

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surface like a dew, till at length, bursting a hole in the globe, it spun out with great vehemence. When stiffening into ice, it cleaves asunder, by its expansion, the massive rocks that confine it; and so vastly is it enlarged when raised into vapour, and so great is its spring or force in that state, that a drop of water, when heated into steam, will raise many tons weight.

65. *Supply of Rivers, Mineral Springs.*] How rivers receive their supplies of water, is easily accounted for. Mists and exhalations are perpetually raised by the heat of the sun from the surface of the earth, and in still greater abundance from the waters of the deep. Clouds, or vapours, being thus formed, are carried by the wind against the mountains, are thereby condensed into drops on their summits, where, sinking into the earth, they descend in the mountain, till meeting with rocks, beds of clay, or other obstructions, they are stopped in their descent, and break out in springs, at the sides or bottoms of the hills: a number of these rills meeting in the valley, form brooks and larger streams; and these, collected together, compose the largest rivers; and hence the largest rivers have always their source among the highest mountains, whose cloud-capt tops never want their supply. The water, in passing through different earths and veins of fossils, often becomes impregnated with their particles; and thus are produced the different medicinal and poisonous springs. All these, with their various properties, together with rivers in general falling into the sea, soon mix with that vast collection of waters, which lying in the deep and unfathomable valleys of the earth, by the order of attraction, is, with all its roarings, thus stayed within bounds, and prevented from deluging the land.

66. *Saltiness of the Sea.*] The saltiness of the sea is a property in that element, which appears to have excited the curiosity of naturalists in all ages. The antients supposed that the sun continually raised dry saline exhalations from the earth, and deposited them on the sea; the present established opinion seems to be, that the sea's saltiness is supplied not only from rocks or masses of salt at the bottom of the sea, but also from the salt which the rains and rivers, and other waters, dissolve in their passage through many parts of the earth, and at length carry with them to the sea; that little but the fresh waters of the sea rise in vapours, and the saltiness remains behind; that hence the sea becomes every year more and more salt. A late philosopher has carried this idea so far, as to fancy, that, by observing the increase of its saltiness during a certain time, the time of its acquiring all its saltiness might be found out by the rule of proportion; and this, he imagined, would give us the age of the world. But are the supplies from rivers always the same? Are the rocks or masses of salt at the bottom forever dissolving, and yet unchangeably continue to give the same supply? May not the ocean, rather by its changing currents, at one time and place tear up from their lowest depths, and dissolve large strata of salts? at another place or time, by the quiescence or other disposition of its waters, or of themselves, may not the dissolved bodies again concrete, crystallize, or petrify, and settle to the bottom? Does not the rock-salt, incrusting by the heat of the sun, evidently shew

shew that the sea does not for ever hold in a state of solution those bodies that have been once dissolved in its waters? so that there seems little reason to fear that the ocean will at length become a pit of salt; which we might reasonably fear, if some of the preceding conjectures were just; and as little cause to apprehend, as some have done, from the petrification of soft substances, that the whole earth shall at length become one solid stone. In fact, wherever we turn our eyes on the works of creation, all seem continually in a state of change or circulation. "The sun," saith Solomon, "arise, and the sun goeth down, and pants for the place from whence he arose; all rivers run into the sea, yet the sea is not full; unto the place from whence the rivers came, thither they return again."

The saltness of the sea renders it more heavy and buoyant; a greater advantage to the mariner is, that he is less liable to take cold, on being wet, than if it had been fresh; by its saltness, the sea is kept longer from freezing; and, perhaps, its saltness helps to preserve it from becoming one putrid lake; yet salt as it is, in hot climates, after a long calm, it is found to become very putrescent; and, indeed, it seems to owe not less of its sweetness to its continual motion than it does to its salt.

67. *Motion, Tides.* The waves of the sea seem generally produced by the winds agitating its surface: there is another more general and invariable motion, the cause of which appears not so obvious. After some wild conjectures of the earliest philosophers, it became well known in the time of Pliny, that the tides were under the influence, in a small degree, of the sun; but in a much greater, of the moon; but how these heavenly bodies produced these effects, was to them incomprehensible. The moderns, however, have concluded, it is by the force of attraction and the centrifugal force. It is observed of the ocean, that the part of its surface which is opposite to the moon, is, by the attraction of this planet considerably raised; and that this swell continually follows the moon from east to west; or rather its place is turned away, while the swell itself remains stationary under the moon. It is observed also, that on the side of the globe opposite to this swell, the waters then rise; and the parts of the sea lying between these swells or risings of the waters, necessarily fall; these swells in the ocean produce the flowings of the tide, and the full sea, or high water; and its intervening falls produce the ebbs, or low water, in channels or harbours remote from the ocean: hence it may be seen why we have two tides in the course of one lunar day. The tide takes up some time in flowing to and receding from remote channels and harbours; hence the tides happen later in these than in the ocean: in some places, where the shores are directly opposed to the influx of the waters, they rise to a great height: where the entrance is narrow, and the sea large, as in the Mediterranean and Baltic, there is scarcely any sensible tide; the water rushing in and out at the straits, being incapable of elevating or depressing so vast a body as the inclosed sea in so short a time. Beside the tides caused by the moon, the sun is also found to produce a sort of tide, though, from its immense distance from our globe, it is so small as hardly to be noticed, and is only observed

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as it affects the lunar ones. When the solar and lunar tides or swellings happen together, which they do at the change of the moon, and at the full, they produce the spring tides: when the solar tide or swell falls on the lunar ebb, and its ebb or depression on the lunar swell or tide, which always takes place at the time of the half moon, from their counteracting each other, we have only neap tides.

68. *Winds.*] It would be far beyond the design of this work to attempt a detail of the many wonders of the deep; it would perhaps be a defect, however, to leave this element without taking some notice of its currents, its eddies, and its spouts; and also of the winds, which, though their consideration belongs properly to the study of pneumatics, yet as they are most steady and constant on the ocean, and peculiarly interesting to the mariner, philosophers have principally built their theories on the observations that this hardy race of men have made upon this fluid element; and the analogy between the winds and the currents of the sea, seem sufficiently close to consider them together. It has been observed, that the general motion of the tides on the ocean is from east to west: this is found to produce one great and general current of the waters in the same direction, as the mariner often experiences on the extensive main; but more especially in the straits, which connect large parts of the ocean together; where a large quantity of water having to pass through a narrow place, it rushes with great rapidity. Currents are found in different parts to run in all directions, east, west, north, and south; but these generally seem all but deviations from the general current; and chiefly caused by jutting promontories, inequalities at the bottom, intervening islands, opposing shores, &c. In like manner, on the extensive ocean, at and near the line, there is found to be a similar current of the air, a general wind continually blowing from east to west: from the poles also the air is found continually to rush towards the equator, which general currents are thus accounted for; the heat of the sun rarefies the air immediately under it in the tropical regions; in one diurnal revolution of the globe this rarefaction will evidently have obtained round the whole torrid zone; from east to west; the rarefied air ascending by its lightness, the denser air rushing in, to restore the equilibrium, it seems obviously clear how these currents are produced; and all other gales and breezes in different parts of the world are accounted only accidental deviations from these general currents; these currents of the atmosphere, namely, the general one from east to west, and the more particular ones from both the poles, may serve to account for all the phenomena of trade-winds: which, if the whole surface of the globe were sea, might be constant, and for ever continue to blow in one direction; but there are a thousand circumstances to break these air-currents into smaller ones, to drive them back against their general course, to raise or depress them, to hurl them in storms, or whirl them into eddies.

That heat necessarily produces wind, may obviously appear, from the current of air that is always found pressing to the culinary fire: hence, exhalations and showers, volcanos and earthquakes, hot sandy
deserts,

deserts, and bleak mountain-tops, and perhaps, more than all others the presence, absence, or the partial distribution of the electrical fluid, tends to alter the temperature of the air: they consequently all contribute to produce the fluctuating winds, while the inequalities of the earth's surface, and even the motion of the sea, all influence or vary their direction; but the air is supposed also, from the same attraction, to have its regular tides as well as the sea, though invisible to us; hence, in spring and autumn, or at the time of the equinoxes, the sun and moon, being both on the equator, their attractions are most powerfully combined, produce high tides in the sea; at that time also the highest winds are found to prevail. In our climate, the winds are uncertain and changeable to a proverb; in many parts of the world they pay their stated visits; in some places, they blow one way by day, and another by night; in others, for one half the year, they go in a direction contrary to their former course; and in some places, as was already observed, the winds never change.

69. *Whirlpools, Waterspouts.*] Most people have observed, in the stream or river, when the current has been interrupted by bridge, stone, or any other thing, an eddy or whirlpool has been formed in the water, just below the obstacle: on a much larger scale these effects take place in the currents of the sea. The whirlpool Charybdis, and the rock Scylla which produces it, in the Straits of Messina, were terrors to the unskilful mariners of antiquity; and their poets have not failed, in describing these dangers, to add the romantic horrors of supernatural influence: they have feigned in these dreaded places, monsters who had been metamorphosed by magic spells, or by the will of Jupiter; and the noise of the waves were, in their extravagant fictions, the barking of dogs, and the howlings of wolves. Modern navigation, however, seems superior to any little eddies that may be found in the Mediterranean; yet, in the ocean there are whirlpools that mock the arts and improvements of man. That called the Maelstrom, or Navel of the sea, on the coast of Norway, produced by the ebbing of the tide, is considered as the most dreadful and voracious in all the world: whatever falls within the circle of its violence, whether timber, trees, or shipping, is swept around by the force of the waters, brought nearer and nearer to the centre of its dreadful vortex, and at length swallowed up: no skill in the mariner, or strength of rowing, can work an escape; even whales themselves fall victims to its superior force, while they roar with terror, and in vain attempt to get free from its certain destruction. What has thus been sucked in by the ebb, is vomited forth with equal violence on the coming or flowing of the tide. In like manner, eddies or whirlpools are produced in the air by its contrary currents; these easily whisk up light bodies, as dust, hay, or straw. In the deserts of Africa and Arabia they sometimes whirl up a body of sand, and bury alive whole caravans of travellers: upon land they also seem to roll together the clouds, and condense them one upon another, darting down a syphon or spout, even tearing up trees, and pouring down a sudden inundation of waters.

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ters. At sea, it is perhaps these whirlwinds alone that produce the waterspout, so dreadful to mariners, and so astonishing to the observers of nature. This curious phenomenon is common in the tropical seas, and sometimes it is seen in our own: in the spot whence it ascends, the water is observed to be agitated, and to rise above its level, with a froth or mist about it; the mist is then whirled about with amazing rapidity, and ascends to the clouds in a column or canal, as thick as a man's finger, his arm, or sometimes his whole body: when it has reached the cloud which hangs over it, it spreads out like the mouth of a trumpet, and mixes with it, or perhaps, it sometimes in this way altogether produces the cloud of itself: the canal, or spout, in its ascent, sometimes rises perpendicularly, at others obliquely; sometimes it is bent, sometimes it is broken, and will join together again; if the cloud be carried along, the canal follows it: all which seems to shew, that it is entirely under the influence of the whirlwind, and produced by it alone. They are sometimes observed in calm weather; but we know not how the winds may be raging in the upper regions of the air: whirlwinds are quite local tempests, and sometimes their force is confined to a very little space. These waterspouts last for several minutes; the canal then lessens by degrees till it vanishes, and the sea about it resumes its level. If one of these fall upon a vessel, its waters are sufficient to break down its rigging, or sink it in the deep. It is said, however, that ships of any force usually fire their guns at them, loaded with a bar of iron; and if so happy as to strike them, the water is instantly seen to fall from them, with a dreadful noise, though without any further mischief.

SECTION VI.

The Mineral Department continued, including the Solids, &c. as Alkalis, Acids, Earths and Stones, Semi-metals, and Metals.

If, leaving the water, and setting our feet on firm ground, we cast our eyes around us on the landscape, many are the wonders that present themselves to view: all living animals, the vegetable productions of the earth, its unequal surface.

70. *Disposition of the Earth.*] Those who observe the broken banks of rivers, or steepy sea-shores, or carrying their speculations still farther, examine the disposition of the earth, as it appears in the quarrying or digging of mines, they find it generally lying in horizontal layers, or strata of different kinds, like the settlements of waters. The first layer that presents itself, is most commonly the bed of vegetable earth or mould, which generally covers the surface of our globe, and ultimately is the support of all its inhabitants; for from this, vegetables derive their growth and nourishment; upon these live the animals, and upon one another. As this affords to animals and vegetables their support, so the spoils of these, when dead or decayed, return to the dust of the ground,

ground, from whence they were formed, and thus keep up an unceasing circulation. The most common disposition of the layers is, that under the first earth is found gravel, or sand; then clay, or marl; then chalk, or coal, marbles, ores, &c. This disposition, however, is far from being uniformly continued all over the globe; in different soils, the order of these layers vary.

And they are ever at small intervals cracked through, as it were, by perpendicular fissures; the earth resembling, in this respect, the muddy bottom of a pond from whence the water has been dried off by the sun, and thus gaping in several chinks, which descend perpendicular to its surface. These fissures, which are to be found in almost every quarry and every field, are sometimes empty, but oftener closed up with adventitious substances, that the rain, or some other accidental causes, have conveyed to fill their cavities: there are some not above half an inch wide, some a foot, some many yards. In some places, they form unfathomable caverns; and among lofty mountains, tremendous chasms. It is remarkable, that in digging deep in the earth, there is generally found an alternation of layers; first, the soil, or mould; then the heavier strata; then soil, mould, or turf; again the heavier layers; afterwards earth, &c. as far as human observation has yet penetrated, or until granite rock is discovered.

It is wonderful, that in the different parts of the globe, on the tops of mountains, as well as in the vallies, at very great depths, and even in the hearts of solid rocks or marble, trees are found; and shells, which are less liable to decay, are discovered in astonishing abundance; parts of animals also. corals, and a variety of petrifications.

The various bodies which are found by digging in the earth, are called fossil substances. Fossils appear to form the most simple productions in the economy of creation, whether disposed in loose independent masses, or in horizontal strata, in angular columns, or basaltic, or in the disportive-like ramifications or shootings, which they sometimes assume in crystallization: hence we find under ground those bodies that have once held a higher place in the creation, as animals and vegetables have put off the delicacy of their former constitutions, and become real stone, while they have still preserved their original forms; or perhaps rather, by absorbing water, holding lapideous particles in solution, the interstices have been filled, and the concretion has consequently borne the form of the organized body: hence fossils are compounded with each other, thro' innumerable varieties; hence many of the compounds are produced in chemistry, and many more that are not to be met with in the earth: hence some of these substances are diffused through the whole creation.

It is supposed that some great convulsions or revolutions in the natural world, have produced the irregular appearance of the earth. The Hebrew writings inform us that our earth was once deluged by a general flood of waters; and later accounts tell us of more partial inundations, of sudden earthquakes, rocks cleft by the frost, mountains accumulated or torn to pieces by subterraneous fires or volcanos; of towns swallowed up in the earth; of countries laid under the rolling waves of the ocean; and of lands rising from the midst of the waters,

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and becoming the habitations of beasts and of men : so transient and uncertain are all earthly things.

If it were permitted to man to follow, during several ages, the various changes which are produced on the surface of our globe, by the numerous agents which alter it, we should at this time have better understood the causes of these phenomena ; but, cast, as it were, for a moment upon a small point of this vast theatre of observation, he regards the mighty works which have been preparing for many ages, and himself disappears in the midst of his enquiries, when he has just proceeded so far as to connect a few facts together. Those revolutions which have been accounted convulsions in nature, seem not only useful, but necessary to the support of the present constitution of our globe. What would be the order of things, if there were not occasionally a rising up of the earth, whether by subterranean fires, or other causes ? if there were not, in different places, a reduction or washing away of land by the waters of the sea ?

The effect of rain is to depress the mountains. The water which falls on their summits, washes them down into the vallies, and thus reduces them into gentle uplands ; or it flows down in torrents, wears away the soil, hollows out a bed or channel, and carries along with it portions and fragments of such stones as it loosens in its course. These stones, rolled along by the water, striking together, break off their projecting angles ; the sea receives them from the rivers, and throws them back again on the shore : by these depositions the land encroaches upon the sea : man erects his habitations on it, and cattle feed thereon ; on digging, he discovers the stones, all in some measure rounded, by their having been rolled about : those which are near the hills are less so, and of larger size than those which have been carried farther, and been more broken in the waters : he finds also the wreck of sea and land-shells, and the remains of animals and plants. It happens that these depositions vary in different situations, and under different circumstances. In one place, strata of shells, and other substances, being deposited, give rise to marls, marbles, or limestone ; in another, an abundance of plants lay a foundation for future coal-mines : the hills, in the mean time, are gradually wearing down, and the land is encroaching on the waters of the sea. The sea, driven off from one shore, cuts itself in other places new channels and bays ; and by the force of subterranean fires, the land is heaved up into mountains, or smaller swells. Those lofty peaks of rock, which, piercing the clouds, seem to be inaccessible to the destructive force of time, the injury of ages are only wasted down by imperceptible degrees. These rocks are of granite ; and naturalists call the mountains which they form, primitive rocks or mountains. These do not exhibit, in their composition, any remains of plants or animals ; they have been considered as formations prior to the existence of those creatures, and of the stones and mountains which contain them. It is even supposed, that the central part of the globe may be formed of granite, which, however, is generally, in its own composition, an assemblage of certain siliceous stones ; and the stones themselves are separately combinations of different principles.

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When the human mind is employed in the acquisition of science, whether it be engaged in the study of the laws of the visible creation, or in the contemplation of itself, its manner of comprehension, or its mode of utterance, in communication to others, it ever finds itself obliged to bring together, under general descriptions, things which have resemblance to each other, though not exactly the same. In this way it classes ideas, or their representative words and sentences, and thus are formed systems of grammar, rhetoric, and logic; and, in this way it reduces the varieties in creation into orders, classes, genera, species, &c. By these means, a regularity is established, well enough adapted to the infirmities of our nature, but by no means suited to the real order of things.

The medium of words is incompetent to express all the ideas, or if we may so express ourselves, the different shades of idea or thought in the mind. These evade every attempt, which we can make to classify them. Even words themselves, the different parts of speech make such approaches to each other, that a perfect grammar cannot be formed. In like manner, the infinitely varied works of creation elude every attempt which is made to reduce them into natural divisions; and when the most ingenious analysis is formed, it is found totally incapable of expressing the real economy of things.

The different colours of the rainbow are not more intimately blended with each other than are all the different parts of the creation,—than are the different degrees and kinds of intelligence in the mind.

71. *Simple Division of Fossils,*] In the consideration of fossils, we may first view them under four general divisions, and afterwards consider them under a more detailed analysis.

I. *Earths and Stones in general,*] Are, 1st, Mold, the support of vegetables. 2d, Clays, which, mixed with water, harden in the fire into bricks, delfe, china, &c. 3d, Calcareous substances; as chalks, marls, limestones, marbles, convertible by heat into quicklime, and gyps into alabaster. 4th, Tales, which are found in flat, smooth laminæ, or plates. 5th, Slates also split into laminæ or plates; these, with a variety of stones, from the freestone, or sand, to granite, porphyry, flint, and the still harder, the precious stones, are of various properties, and are accordingly applied to different purposes; some, besides their being applied with other stones in building, are used as whet-stones; some strike fire with steel; others are polished, to glitter in the dress or furniture of the gaudy; and melted by fire, they form the transparent glafs.

II. *Salts* are acids, or alkalis. The acids and alkalis, combined together, form neutral salts.

III. *Inflammables* are sulphur, or bitumens. These substances are both derived from the spoils of vegetables or animals.

IV. *Metals* are brittle semi-metals, or malleable metals.

In entering upon our more detailed analysis of fossil substances, we may commence with the alkalis and acids, as these seem to be most active agents in creation. These, however, we shall find, do not, strictly and exclusively, belong to the fossil department; they are ob-

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tained also from animal and vegetable substances, as are inflammables, or sulphurs and bitumens.

72. *Alkalis.*] Alkalis have an acrid, burning, urinous taste, and the property of converting syrup of violets green; they form glass when fused with quartzose substances; they render oils miscible with water, and it is on this principle that soaps are formed: they effervesce with certain acids, and form neutral salts with all of them.

The alkalis are divided into fixed and volatile; the former are not volatilized, even in the focus of a burning mirror, and emit no characteristic smell; whereas the latter are easily reduced into vapours, and emit a very penetrating odour.

No more than two kinds of fixed alkalis have hitherto been discovered; one of which is called vegetable alkali, or pot-ash; the other mineral alkali, or soda.

The vegetable alkali is extracted from wood-ashes: it is also obtained by combustion, from the lees and tartar of wine. Salt of tartar is the alkali most commonly employed in medical uses. If saltpetre (a neutral salt) be fused upon charcoal, the acid is decomposed and dissipated, while the alkali remains alone and disengaged: this is called extemporaneous alkali. When the vegetable alkali has been brought to the greatest state of purity, it attracts the humidity of the air, and is resolved into a liquor.

The mineral alkali has been so called, because it forms the basis of marine salt. It is obtained from the burning of marine plants. The combustion is kept up without interruption for several days; and when all the plants are consumed, a mass of alkaline salt is found remaining, which is cut into pieces, to facilitate its carriage and sale. This is known by the name of rock-soda, or soda. The mineral alkali is sometimes found in a native state. In Egypt it is known by the name of nation. There are lakes there which are dry during nine months in the year; but, in winter, a water of a violet red colour oozes out of the earth, which fills the lakes to five or six feet in depth: the return of the heat of summer evaporates this, which leaves a bed of salt of two feet in thickness, that is dug out with bars of iron. It has also been found in other places.

The mineral alkali is less caustic than the vegetable; and is so far from attracting humidity, that it effloresces in the air. It forms different products with the same bases, and is more proper for vitrification.

Volatile alkali, or ammoniac, is produced by the putrefaction of animal substances. The distillation of all their parts affords it in considerable abundance; but horns are employed in preference, because they are almost wholly resolved into oil and volatile alkali. Some plants afford volatile alkali; for which reason they have been called animal plants: and the distillation of some schisti, or slates, also affords it. This circumstance is attributed to their origin, which is pretty generally ascribed to vegetable and animal decompositions, the print of fishes and other substances being frequently found in them. Almost all the volatile alkali made use of in commerce or medicine, is afforded by the decomposition of sal ammoniac;

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and it is from this circumstance that the volatile alkali is called ammoniac.

Volatil: alkali is found to be composed of nitrogene and hydrogen; the latter forming about one fifth part of the composition. The fixed alkalis are supposed to be combinations of nitrogene gas with earthy bases; vegetable alkali being nitrogene combined with lime; while the union of the same gas with magnesia forms soda, or mineral alkali.

73. *Acids, &c.*] All acids appear to be combinations of oxygen, or vital air, with elementary substances. Their taste is sour, as their name imports; they change certain blue vegetable colours into red, such as the colour of turnsole and syrup of violets; and these two reagents are commonly used to ascertain their presence. They effervesce with alkalis; but weak acids cannot be distinguished by this property; and the purest alkalis combine with acids without motion or effervescence. Their causticity seems to arise from their strong tendency to combination; and from this property they are seldom found in a disengaged state.

Acids and alkalis, when combined together in such proportion that neither of them predominates, form neutral salts: substances altogether dissimilar to the elements of which they are composed. The salt in common use, for instance, is formed of mineral acid and alkali; either of which, singly, would be hurtful to the human body; and the acid, in particular, would be extremely pernicious.

If we except the combinations of acids with alkalis and with certain earths, these substances are either totally or partially decomposed in all the operations made with them upon metals, vegetables, and animals.

The language of chemistry has, necessarily, from the discoveries made in the science, of later times acquired a precision which it had not heretofore. In order to observe a more exact arrangement, and at the same time to assist the memory, common terminations have been given to words which denote the combinations of acids with their bases: thus the carbonic, sulphuric, and nitric acids, are expressed by the words carbonates, sulphates, and nitrates. The difference in the acids arises from the abundance or deficiency of oxygen: in the former case, the acids are said to be oxygenated; hence they are called oxygenated carbonates, oxygenated sulphates, &c. In the latter case, or when the acid is weak, the termination of the word, which denotes the acid, ends in *ous*; hence the sulphureous acid, the nitrous acid, &c. or more briefly, the combination is called sulphite, nitrite, &c.

Carbone and sulphur, which form the bases of two acids that seem to have a great influence in the works of creation, as well as in the operations of the laboratory, are accounted elementary or uncompounded substances.

Carbone, or pure charcoal, exists in vegetables; and in animals also; but the quantity is small. Carbone is likewise in plumbago, or black lead, of which it is one of the principals.

Sulphur is formed by the decomposition of animals and vegetables: it is abundantly contained in coal-mines, and is found in combination with certain metals: it forms the greater part of those pyritous and bituminous

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The carbonic acid, or fixed air, is a combination of oxygene and pure charcoal. It is heavier than common air, insomuch, that it may be poured out of one vessel into another; and it extinguishes lighted candles. It is found in a state of gas on the surface of certain waters, and in various subterraneous places. It is this gas which produces the many unhappy accidents at the opening of cellars where wine, cider, or beer has fermented; and on the breaking into old coal-works. The carbonic acid exists also in a state of mixture and of combination. Alkalis are rendered mild by a union with it. Chalk, and other calcareous substances, when deprived of it, form lime. Water imbibes it, receives a strong impregnation, and in this state forms an useful drink in some disorders. The agreeable taste of beer, cider, and wines, and their sparkling appearance, depend upon the presence of this gas. In carbonic acid, the charcoal forms rather more than one-sixth of the composition; the rest is oxygene.

Sulphuric acid is a liquid, and may be congealed by intense cold. The sulphureous acid preserves its gaseous form at the temperature of the atmosphere. They are found in grottos, and on lakes, in Italy, in the neighbourhood of volcanos and baths, as well as prepared by art. Sulphuric acid is unctuous to the touch, and hence is called, though improperly, oil of vitriol. It is heavier than water, and produces heat when mixed with it, to such a degree as to exceed that of boiling water. It seizes with great avidity all inflammable substances; and it is blackened and decomposed by this combination.

The nitric acid, called also aquafortis, is lighter than the sulphuric. It dissolves, and speedily corrodes iron, copper, and other metals; when mixed with oils, it renders them thick and black, and converts them into charcoal, or inflames them. If very concentrated nitric acid be put into an apothecary's phial, and be poured upon charcoal in an impalpable powder, and very dry, it takes fire instantly. The facility with which this acid is decomposed, renders it one of the most active: and by the digestion of it on different substances, various acids are obtained; such as the oxalic acid, or acid of sugar, the arsenical acid, &c. Nearly equal parts of the nitrous and oxygene gases, form about one-thirteenth part of the nitric acid, and the rest is water: and the nitrous gas is a combination of nitrogene, with a small portion of oxygene.

Muriatic, or marine acid, called by artizans the spirit of salt, is lighter than the two preceding acids. The oxygenated muriatic acid dissolves metals without effervescence. It thickens oils, and whitens linen and cotton-cloths, and paper. Writing ink disappears by the action of this acid; but printer's ink is not attacked by it. By substituting the oxygenated muriate, instead of saltpetre, in the fabrication of gunpowder, the strength of the composition is quadruple. The experiment, which was made in the large way, at Essone in France, is but too well known by the death of Le Tors, and the young

woman Chevrud. The powder exploded the moment it was triturated.

The nitro-muriatic is a combination of the nitric and muriatic acids; it has heretofore been called *aqua regia*, and has the property of dissolving gold.

The acid of borax is found in the water of certain lakes, and in the mines of Tuscany; but is generally found combined with soda.

The different acids combine with the three alkalis, forming various neutral salts, of different uses in the arts and medicine; hence arise the terms of carbonate, sulphate, nitrate, muriate, or borate of potash of soda and of ammoniac.

74. *Lithology in Brief.*] The various earths beneath our feet, are in general combinations; and chemists, by decomposing these substances, have succeeded in obtaining, in the last analysis, principles which they have considered as earthy elements. The earthy elements most extensively distributed, are five in number, namely, lime, barytes, magnesia, alumine, and silex. The adamantine spar and jargon of Ceylon are yet too slightly known, and too scarce to influence the present division. These, with the frontite from Scotland, in addition to the other five, make the primitive earths amount to eight.—The mixtures and combinations which constitute the various kinds of stones, seem generally to have been formed of the primitive earths. The earths combined with acids form what are called saline stones: mixed with each other, they form stones, properly so called, or earthy mixtures. Again, these stones so formed by the mixture of primitive earths, when united together, or fixed in a gluten, or cement, form rocks, pebbles, and compound stones, or stony admixtures.

1. Lime seizes water with great avidity; at the same time that it falls into powder, increases in bulk, and emits heat. It appears to be infusible alone, as it has resisted the heat of flame urged by a stream of vital air. When it is mixed with acids, it forms a fusible combination; and it hastens the fusion of aluminous, siliceous, and magnesian earths.

2. Barytes, or ponderous earth, when pure or uncombined, appears to be infusible alone. It precipitates alkalis from their combinations with acids, and dissolves with the latter.

3. Magnesia alone is also infusible: when pure, it is not perceptibly soluble in water; but when it is combined with the carbonic acid, it is soluble; and cold water has a stronger action on it than hot.

4. Alumine, or pure clay, seizes water with avidity, and may then be kneaded: when exposed to heat it dries, contracts, shrinks, and becomes full of clefts; when it has been well baked, it is no longer capable of uniting with water, but requires to be dissolved in an acid, and precipitated, in order that it may resume this property. It is capable of fusion, approaching to the consistence of paste, by heat excited by a current of vital air. This transforms it into a kind of very hard stone, which cuts glass like the precious stones, and which very difficultly yields to the file or gives fire with the steel.

5. Silex, quartzose earth, or vitrifiable earth, exists nearly in a state of purity in rock-crystal. The burning mirror does not fuse silex; but

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but the application of fire with a current of vital air, produces a commencement of fusion on its surface. Alkalis dissolve it in the dry way, and form glass; they attack it likewise in the humid way, and are capable of dissolving one-sixth part of the weight when it is in a state of extreme division.

I. The class which comprehends the saline stones, or the combination of primitive earths with acids, naturally exhibits the five genera of earthy salts, with bases of lime, of barytes, of magnesia, of alumine, and of silice.

The earthy salts or acids being, as already described, carbonates, sulphates, &c. hence arise, under these genera, the divisions into the species of carbonates, sulphates, fluates, &c. of lime, of barytes, of magnesia, of alumine, and of silice.

II. The combinations and mixtures of primitive earths, or earthy mixtures, form stones, properly so called. If attention were to be paid in reducing these into divisions, to such slight varieties as depend on the proportions of the mixtures, it would be endless; the genus, therefore, is deduced from the stone or earth whose properties predominate in any mixture, so as to communicate most of its character to the whole mass. Hence, the genera in stones are reduced to calcareous, barytic, magnesian, aluminous, and siliceous mixtures. The species and varieties under these genera are necessarily very numerous, and they are increased also by the saline, metallic, and even bituminous substances being combined with them.

III. The mixture of stones among each other, form pebbles or rocks. Here the genera are established upon the presence of such stones as predominate; and accordingly are rocks formed by the mixture of calcareous, of barytic, of magnesian, or of aluminous stones with others; of quartzose stones with each other; and supercompound stones, or such as result from the mixture and reunion of several different genera. The species are deduced from the variety of stones mixed with that which determines the genus.

75. *Enlarged View of Lithology.*] Having glanced in a cursory way at some of the leading scientific divisions in lithology, without embarrassing ourselves with the minuteness of system, we may now avail ourselves a little of the order established, and just notice some of the most striking objects that occur in our transient view.

I. Of saline stones, those of the calcareous kind seem to form the largest quantity; and the phenomena they exhibit seem particularly interesting.

1. Calcareous stones, when deprived of the carbonic acid, which forms a part of their composition, are reduced to lime; and the hardening of mortars appears to be owing merely to the progressive regeneration of limestone, which is effected in the lapse of time. This explains to us why the hardest stones afford the best lime; and why the mortar, in the remains of ancient buildings, is found to possess a degree of hardness which modern artists have no hopes of attaining. The hardening of mortar may be accelerated, by mixing with it substances which contain either the carbonic acid, or a principle analogous to it; such as vinegar.

The formation of calcareous stones appears, for the most part, to be owing to the wearing down of shells. The identity of the constituent principles of shells and calcareous stones, and the presence of these same shells, more or less altered, in the limestone mountains, authorize us to conclude, that a great part of the calcareous mass of our globe owes its origin to this cause only.

Though our imagination appears to assent, with difficulty, in referring effects of so wonderfully extensive a nature to a cause apparently so weak, we are compelled to admit it, when we take a slight view of the known history of shells and, we may add, of coralline substances. If we consider the number of animals which emit this stony transudation, their speedy augmentation, their multiplication, the short period of their life, and the mass of shells they are continually leaving behind them, we need no longer be surprised that a considerable part of the surface of the globe is covered with their remains.

It may easily be conceived, that these shells, when carried along by currents of water, must strike together, and be broken and worn down; and that their pulverulent remains, after being long carried about and suspended by the waters, must at last subside, and form heaps, banks, or strata of shells, more or less altered according to circumstances.

Spars and calcareous crystals are sometimes found in the clefts and cavities of calcareous mountains; and generally in all places where waters find access, after having worn down calcareous stone to a state of extreme attenuation, nearly correspondent to solution. It is owing to depositions of this sort, that subterraneous caves are often found lined with petrifications or stilactites. These grottos sometimes present a most grand and beautiful appearance. The extent of the cavern, the loftiness of its concave, the multiplicity and variety of figures formed by the stilactites, whether hanging from the roof, encrusted on the sides, or piled on the floor, their resemblance to other things, the reflection of the light of the torches from the glistening objects on every side, might impress on the astonished imagination the idea of enchantment and illusion. The increase of stilactites being accomplished by addition to their external surfaces, their texture exhibits concentric coats of different shades, accordingly as the water may have been charged with different colouring principles.

At Guancavelica, in Peru, artists obtain statues and stones for building, by filling their moulds with a lapideous or petrifying water; and in this way *basso-relievos* of alabaster, as hard as marble, are obtained from the chalky waters of the baths of St. Philip, in Tuscany.

Few calcareous stones bear any regular form or appearance of crystallization: they lie almost always in strata, or in immense blocks, thrown or heaped together on the surface of the globe. The notion which we have of the formation of these mountains, and the stratified disposition of their parts, does not allow us to expect any other appearance than that of the settlements of water in horizontal strata, or in banks or beds thrown up by the waves, or in the more irregular disposition they may have been thrown into since their formation, by earthquakes, volcanic eruptions, &c. Calcareous substances vary in their degrees of hardness, as well as in other properties, from the limestone, alabaster,

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alabaster, and marble, to the pulverulent chalk and the deliquescent marine salt, which gives that bitterness to the waters of the sea that has been improperly referred to bitumens.

2. Barytes is ponderous, and almost always accompanies metallic ores.

3. The combinations of earthy salts with magnesia, are salts which are in general very soluble in water, and applied in medicine: they are found in solution in several mineral waters; and in some dry situations they are efflorescent, and taken by birds or other animals.

4. The substance which in the arts is known by the name of clay, is a natural mixture of several earths. Alumine, or pure clay, is capable of combining with the greatest part of the known acids; but the most common of these salts is alum, which is a very valuable material in the arts.

5. Silix is, of all the known earths, that which combines the most difficultly with acids.

II. The pure and simple earths are rarely found uncombined; besides their being united with acids, they are constantly mixed with each other, and form masses of greater or less magnitude and various hardness, according to the nature of the earths, their state of division, and the character of the foreign substances which are combined with them; such as iron, bitumens, &c.

1. In calcareous mixtures, the limestone combines with all the other earths, and also with bitumen and iron: mixed with clay it forms marl. In some parts of France bitumen abounds so much in limestone, as to distil through the clefts of the rocks, and form stilactitious bitumen, which the country people collect, to mark their sheep or to grease their cart-wheels; and in the heat of summer it flows into the roads, and impedes the motion of the carriages.

2. Barytic mixtures are very rare, because the stone itself is scarce.

3. Magnesian mixtures may be cut with a knife, or turned in a lathe; and take a tolerable polish. They stick to the tongue like clays; but do not, like them, soften in the water. Some of them are disposed into fibres; and these fibres possess, for the most part, a remarkable degree of flexibility. Of this kind is amianthus; the flexibility of which is such, that the ancients constructed cloths of it, in which they burned the bodies of the dead. The cloth withstood the fire; and thus the ashes of the dead were collected for the urn without the mixture of those of the fuel.

4. Aluminous, or argillaceous mixtures, or clay, are divisible in water; and of these are formed all the varieties in pottery and porcelain. The slate, or schistus, is an argillaceous stone, whose principal character is that of being divisible into very thin plates, capable of being wrought, and of receiving a certain polish. Pyrites, or sulphur of iron and bitumen, sometimes enter into their composition. The mountains which afford these schisti, appear to be marine depositions. Impressions of leaves, of fishes, and other characters, are frequently observed, which leave little doubt of their origin. When their decomposition is favoured by air or water, a prodigious heat is excited, hydrogenous gas or inflammable air is produced, which exerts itself

against the surrounding obstacles, and takes fire when it comes in contact with the air. It is this intestine labour which occasions the shocks and tremulous agitations that precede the eruptions of volcanos.

Pit-coals do not differ from those schisti but in their greater abundance of bituminous principle: spontaneous inflammation takes place in heaps of pyritous coal, and the same effect happens even in the midst of the veins which are wrought.

When the earthy and metallic principles which form the basis of bituminous schisti are strongly heated, and almost vitrified by the fire which produces their decomposition, they constitute volcanic products.

5. Siliceous mixtures include the stones which give fire with the steel. Of this kind are the precious stones, which are divided into Red Gems,—the Ruby, Garnet, &c. Yellow Gems,—the Topaz, Hyacinth, &c. Green Gems,—the Emerald, Chrysolite, Beryl, &c. Blue Gems,—the Sapphire. Of this kind also are the rock-crystals, which seem to have a similar origin with the calcareous spars. They are formed whenever their principles, in a state of extreme division and attenuation, are suspended by water, and deposited with all the circumstances which are required, in order that crystallization may take place. The crystals also, as well as the gems, are of different colours.

Those siliceous substances, in which no regular form appears, are comprehended under the name of Quartz, and possess various degrees of transparency. Quartz seems to exhibit more varieties and shades of colour than rock-crystal itself. It seldom forms entire mountains, but almost always intersects, by veins, more or less wide, the mountains of primitive schistus. The blocks of quartz, detached by waters, are rolled, rounded, and deposited in the form of large stones, on the banks of rivers: the same stones, more attenuated, form the quartose pebbles; and these, still more divided, produce sand. This sand forms an excellent mortar with good lime; and when fused with alkalis, it produces a very beautiful glass.

The state of fineness in the constituent principles of flints, and their more or less intimate mixture or amalgamation, cause them to be divided into coarser and finer flints. The first form gun-flints, petrofilex, &c. the second comprehend agates, calcedonies, &c. The filex, or flint, properly so called, is semi-transparent when very thin; the petrofilex differs from it, in being more opaque; it is interspersed in veins through rocks: and from this circumstance it derives its name.

The agate takes a most beautiful polish; its varieties are innumerable, and they are distinguished into clouded, punctuated, spotted, irised, herborised, mossy, &c. The name of onyx is given to that kind of agate which is formed by concentric bands. The opals have received various names, according to the colours they reflect. The chatoyant stones, or such as vary their colour according to the position of the light and the eye of the observer, are varieties of the opal. Calcedony is of a milk whiteness, and has often a shade of blue, yellow, or red; but does not possess the chatoyant property, or

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the changeableness of colour. The white and opaque calcedony, is known by the name of cacholong: the hydrophanes, which becomes transparent in water, is a modification of it. The cornelian is a species of agate, nearly transparent, and of a flesh colour. The sardonyx is semi-transparent, and of an orange colour.

Jasper is one of the hardest stones we are acquainted with. It is susceptible of the finest polish; and from its variety of colour receives the name of sanguine, green, flowered, jasper, &c.

The schorles nearly approach the jasper in its external characters. There are few stones which exhibit a greater variety of form or colour. The schorles are crystallized, or irregularly shaped; their colours are black, green, violet, or white. Tourmaline is a variety of the schorle.

The volcanic products are also siliceous mixtures, and may be converted by fire into a most beautiful black glass; these are basalt, lava, and terra pozzolana. These substances are of the same nature: they are called basalt when their form is regular; lavas, when they have no determinate figure; and terra pozzolana, when they are considerably attenuated. Basalt is distinguished into the prismatic basalt, the basalt in tables, and the spherical basalt. Lava is distinguished into compact lava, porous lava, twisted lava, lava in tears, &c.

Lapis lazuli, when reduced to powder, forms the valuable colour, known by the name of ultramarine.

Feldspar very frequently forms one of the principals of granite; and the crystals, which are found separate, arise from the decomposition of this primitive rock.

III. Rocks, pebbles, or stony mixtures, appear to have been produced either by revolutions, which have reversed and confounded the whole surface of countries, or by the action of waters, which have successively formed the strata of rounded flints, spread over the surface of the globe; and have afterwards deposited in their interstices that earthy matter which has connected them together. These mixtures have afterwards acquired a degree of hardness; and at length appeared to form one single substance.

1. Though the basis of calcareous stones enters into the composition of the greater part of lithologic substances, there are few rocks which can be ranged in this class.

2. Ponderous spar is of considerable scarcity, and is almost always found alone.

3. The various known magnesian-stones, are often exhibited in contact with each other in the same rock.

4. Rocks, formed by the mixture of aluminous stones with others, forming various granites, form several primitive mountains. They furnish millstones, grindstones, stones for filtering, and other purposes.

5. Compounds of siliceous stones, form great part of the granites of our globe. Pebbles of quartz, enveloped in petrosilex, form the plum-pudding stones; some of these are so compact, that they are capable of the finest polish, and produce a beautiful effect by the variety of colour of the several flints connected in the same gluten.

Porphyry is composed of jasper and feldspar. The jasper composes

poses the ground, and is green, black, or red; the spar is interspersed in small needles, or in flat parallelopipedons, which are white, yellowish, or red. As this stone is susceptible of the most beautiful polish, it has been employed as an ornament both in public and private buildings.

The diamond was long considered as the hardest and most ponderous of stones, as well as the only one which did not cause a double refraction; but subsequent observations have destroyed these early notions. The adamantine spar appears to equal it in hardness; the oriental ruby and jargon of Ceylon are more ponderous; and the oriental precious stones exhibit one refraction only, as does likewise the phosphoric spar.

The earth, which serves the diamond as its gangue, or incloses it, is red, ochreous, and soils the fingers. The diamond is divided into two kinds, the Oriental and the Brazilian: the latter crystallizes into dodecahedrons; the Oriental diamond is in the greatest estimation, and is found on the coast of Coromandel, principally in the kingdoms of Golconda and Viliapour; it crystallizes in octahedrons, and exhibits all the varieties of this primitive form.

The manner or form in which diamonds are cut, distinguishes them into rose diamonds and brilliants. The variety of form given to these facets, and their different inclinations with respect to each other, multiply the refractions, and contribute to afford those reflections and beams of pure and vivid light which characterize the diamond.

The diamond is sometimes coloured green, black, &c. The green are the most esteemed, because they are the most scarce. The weight of the coloured diamond is more considerable than that of the white diamond, because it is augmented by the superior weight of the colouring principle, which is of a metallic nature. A diamond is said to be of a fine water when it presents no defect or spot; and the price is proportioned to its purity. That which at present belongs to the Czarina, weighs 779 carats. She purchased it in 1772, for 12 tons of gold (100,000 florins) and granted a pension of 4000 roubles to the seller.

Combustibility is a character in the diamond which prevents its being assimilated to any known species. The jewellers, who expose their diamonds to very violent fires, to render them colourless, are careful to wrap them up in such a manner as to secure them from the contact of the air, as they would otherwise dilate, swell up, and pass off in a blue flame.

76. *Mineralogy.*] Metallic substances are distinguished from all the other productions of our globe, by their superior brilliancy and specific gravity, and by their opacity.

The most opaque stone, divided into very thin laminæ, becomes transparent. Gold-leaf, it is true, when reduced to the two hundred and eighty-thousandth part of an inch in thickness, transmits light of a beautiful green colour; and if the other metals were rendered equally thin, they might be found equally transparent: but very thin plates of metal preserve the same opacity as the mass itself. This property has induced artists to employ metals to reflect the images of objects.

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objects. A thin covering of tin and mercury, fixed on the surface of a glass, forms a mirror, or looking-glass; and polished metal constitutes the mirrors of telescopes.

Metals are generally concealed in the bowels of the earth, combined with other substances; which, by masking or changing the metallic properties, require the ingenuity or industry of man to extract them, clear them of their original combinations, and give them the valuable qualities which are peculiar to metals. The metals, thus buried and concealed, form ores. These ores usually exist in clefts or crevices of rocks, which are distinguished by the name of veins; but when the ore is found in spherical parts or masses, from space to space, these masses are called bellies, or stock-works.

The characters from which mineralogists pretend to assert the existence of an ore in the bowels of the earth, are all equivocal and suspicious. The savage aspect of a mountain, the nature of the plants which grow upon it, the exhalations which arise from the earth, all afford but doubtful characters; and the dipping wand, or divining rod, is the fruit of superstition and ignorance.

The nature of the stones which compose a mountain, is capable of furnishing some indications. Ores are seldom found in granite, and other primitive mountains; mountains of too modern a formation contain them very rarely; and they are only found in secondary mountains, in which the schistus and ancient calcareous stone are void of all impressions of shells. The presence of ponderous spar, forming a stratum or vein at the surface of the earth, has been considered by several mineralogists as a good indication.

It frequently happens that the veins are naked or uncovered: the mixture of stones and metals forms a kind of cement which resists the destructive action of time longer than the rest of the mountain; and as these parts of rocks, connected by a metallic cement, present a stronger resistance to the action of waters, which incessantly wear down the mountains, and carry away their parts into the lower grounds or to the sea, veins are frequently observable, projecting on the sides of mountains, incrustated with some slight metallic impression, altered by the lapse of time.

Sulphur and arsenic, mixed with the metals, are called mineralizers. The metals are generally mixed with stony substances, which are called gangue, on which account the mineral is crushed and pulverized, and a stream of water made to pass over it, which carries away both the metallic and stony particles; the former being deposited in the first vessels through which the water is made to circulate, while the latter, or stony part, is carried to a greater distance, on account of its lightness.

The calcination of the mineral succeeds the washing. In this operation the mineralizer is carried off. Fire is always the agent made use of. When the mineral is once cleared of its gangue, its mineralizer, and all other foreign matter, it constitutes what is called a metal, or regulus. Every metal is fused, and even volatilized, at a certain degree of heat, more or less intense.

Most metals kept in a state of fusion, lose their metallic brilliancy, and become converted into an opaque powder, called oxide, or metallic calx

calx. The oxides, when urged by a stronger heat, are reduced into a vitriform substance, known by the name of metallic glass. Metals acquire weight in their transition to the state of oxide, by the absorption of oxygene.

Metals may be distinguished into such as are ductile, and such as do not possess this property. The name of metal has been peculiarly applied to the former, and that of semi-metal to the latter kind. Among the metals, there are some which are changeable by exposure to the air; these are called imperfect metals; while others, not sensibly altered in the same situation, are called perfect metals.

77. *Semi-Metals.*] The semi-metals, for the most part, approach to the saline or stony substances in their qualities: the others possess the metallic qualities in a higher degree.

Arsenic, cobalt, nickel, bismuth, antimony, zinc, and manganese, are called semi-metals. Tungsten, wolfram, and molybdena, are also metallic substances. Lead, tin, iron, copper, mercury, silver, gold, and platina, are metals: the last three are called perfect metals; they suffer no change by fusion, or the longest continued heat.

Arsenic is most commonly met with under the form of a metallic oxide, of a glittering whiteness, sometimes of a vitreous appearance. It unites by fusion with most of the metals; but those which were ductile before this addition, become brittle afterwards; those which are of difficult fusion alone, flow more easily; those which are very fusible, become refractory; and the yellow or red metals become white by this alloy.

The oxide of arsenic is capable of combining with sulphur, and the result is orpiment: or, if exposed to a strong heat, it forms realgar. Orpiment is less scarce than realgar, and both are found native in certain places, as in the waters of volcanos. Realgar is common in China; it is made into vases, pagods, and ornamental works. The Indians prepare a purgative medicine, by leaving vinegar or lemon-juice for several hours in these vessels. Arsenic is used by dyers and painters, and in melting of glass and metals. It is very frequently met with in mines, and being very volatile, it forms a dust, which affects and destroys the lungs; and the unhappy workmen die, after a languishing life of a few years.

Cobalt is of a light grey colour, compact and brittle, and is not easily fused or volatilized. It resists cupellation, and does not amalgamate with mercury. The working of cobalt ores is very simple. It consists in roasting the ore, in a reverberatory furnace, terminating in a long chimney, in which the vapours are received. These vapours, or arsenical fumes, attach themselves to the sides, and form a crust, which is cleared off by criminals, who are condemned to this work for crimes for which they would otherwise have suffered death.—How long will man dare to touch, with sacrilegious hand, the life of his fellow! Impious alike are the wearing it down, by methods destructive of health, ease, and comfort, and the cutting it off at once. The cobalt ores of Saxony chiefly afford the arsenic of commerce. When the oxide of cobalt is cleared of arsenic, it is known by the

name

name of zaffer, which being fused with sand and pot-ash, forms a blue glass, which, when pounded, sifted, and afterwards ground in mills, forms smalt.

Smalts are used in the preparation of cloths, laces, linens, muslins, threads, &c. Cobalt is likewise employed in forming blue paintings on fayence, porcelain, and other potteries; crystals and glasses are coloured blue by this substance: and it is also used in painting in fresco.

Nickel is mostly combined with arsenic, iron, and other substances.

Bismuth, or tin-glass, is of a shining yellowish white colour, disposed in plates and chatoyant. From its property of amalgamating completely with mercury, it may be applied with advantage in the silvering of glasses. It unites with other metals, and gives a greater degree of hardness and brilliancy to tin.

Antimony enters into the composition of printer's types; and is likewise mixed with tin, to increase its hardness. There are various preparations of antimony made use of, with great effect in medicine.

Zinc is of a bluish, brilliant, white colour, very difficultly reducible into powder, but capable of being extended into very thin plates, by the equal and gradual pressure of the flattening-mill: these plates or leaves, when very thin, take fire by the flame of a taper, and burn, with a blue colour, mixed with green. The ore of zinc, called calamine, unites with tin and copper, and forms bronze; when combined with copper alone, it forms brass. Sublimations of zinc are used in medicine.

Manganese is found in various situations in the earth, in ores, stones, and the ashes of vegetables. It is more infusible than iron, but unites easily with all the metals, except pure mercury. It is mostly in the state of oxide, and is chiefly used in glass-houses to deprive glass of its green or yellow colour; and hence it has received the name of soap of the glass-makers; it is also used, since the discovery of the oxygenate muriatic acid, in bleaching of linen, cotton, &c.

Tungsten and wolfram are two minerals, which have been both distinguished under the generic title of Tungsten. The affinities of the tungstic acid are nearly the same with those of the arsenical acid.

Molybdena is a pyritous ore, and has a great resemblance in its chemical results to antimony, affording, like that semi-metal, an argentine oxide, capable of vitrification.

That beautiful law in creation, whereby the different unorganized productions are impressed with regular forms, doth not cease to exist under the hands of man in his various experiments. He finds the ores of metals, as well as other fossil substances, under determinate forms, or geometrical figures of different kinds; and when by art he reduces them to a regulus, or metallic form, the same disposition still manifests itself. If when the surface of a melted metal begins to congeal, the part beneath, yet in a state of fluidity, be drawn off, the under part of the crust of metal will exhibit regular crystalline forms. The breaking

breaking of a metal also shews its grain, or the regular disposition of its particles into crystals, or determinate forms.

[8. *Malleable Metals.*] Lead is the softest, the least tenacious, the least sonorous, the least elastic, and one of the most ponderous of metals, being heavier than silver. It is usually mineralized by sulphur; and this ore is known by the name of galena, and distinguished into small diced, large diced, scaly or plated, and compact galena, which is in small brilliant grains, resembling steel. In general, the large diced galena is poor in silver, and is used to give a glaze to pottery, by the name of alquifoux, or potter's lead ore; that which is in small grains is richer, and is wrought as a lead ore containing silver.

Lead melts long before it is red hot, and then calcines if it be in contact with respirable air. In the progress of calcination, it first becomes a dusky grey powder, then yellow, when it is called massicot; then, by imbibing pure air, it becomes red, and is called minium, or red lead. In a greater degree of heat it becomes massicot again, having parted with its pure air. If the heat be too great, and applied rapidly, it becomes a stony substance, called litharge; and with more heat, it becomes a glass, which readily unites with metallic calces and earths, and is a principal ingredient in the manufacture of flint-glass.

All acids act upon lead, and form with it different saline substances. White lead consists of its union with vinegar and pure air. Sugar of lead is the solution of it in vinegar, crystallized; and, like the other preparations of it, is a deadly poison.

Tin is very soft, and the lightest and most easily melted of any of the entire metals. By the continuance of heat it is slowly converted into a white powder, or putty. The putty of tin is used to polish hard bodies, and to render glass opaque, which converts it into enamel.

Tin is used in coating iron and copper-plates, and in silvering looking-glasses, besides being cast in a variety of forms, when it is called block-tin. Alloyed with copper, it forms bronze, or bell-metal; one part of tin and two of lead make a solder which melts with less heat than either of the metals separately; and a composition of three parts of tin, five of lead, and eight of bismuth, forms a metal which melts in boiling water.

Tin is the principal ingredient in the composition of pewter. Pewter may be distinguished under three kinds; namely, plate-metal, trifling, and ley. The first is a composition of tin and regulus of antimony. Trifling may be composed of plate-metal and lead; and by the further addition of lead, trifling may be reduced to ley.

As tin is the lightest of all metals, the finer that pewter is, the lighter the metal; while gold, on the contrary, it is well known, is fine in proportion to its specific gravity, this being the densest of all metals, and consequently heavier than any other with which it may be alloyed.

Iron is the most generally diffused metal in nature. Almost every mineral substance of this globe is coloured with it; and its various alterations produce that truly astonishing variety of colours which are comprehended between the blue and the deepest red. It likewise exists in the animal and vegetable departments. Those places, or matrices,

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trices, in which the iron is sufficiently abundant to be wrought with profit, are called Iron Mines, or Ores.

The first product in fusing iron ore, is called Cast, or Crude Iron. It is brittle, but may be rendered ductile by heating it again and hammering it. For this purpose the pig-iron is fused again, and stirred while in the state of fusion: after which it is carried to the forge-hammer. By this treatment the iron becomes ductile, assumes a fibrous texture, and is formed into square or flat bars. The iron thus rendered malleable, is converted into steel, by being kept at a red heat in charcoal, or coaly substances. Steel heated in contact with earthy matters, is reduced to iron, the earthy matters taken off the charcoal, which had before penetrated and combined with its substance.

Iron, when combined with sulphur, forms pyrites: and plumbago, or black lead, is a true charcoal, combined with a basis of iron.

The uses of iron are so very extensive, that there are few arts which can be practised without it. Some of its ores are used in their native state; such as the hematites, which is made into burnishers. The sulphate of iron is the basis of black colours, inks, &c. The ochres are used by painters under the name of umber; and Prussian blue is obtained from iron. It likewise furnishes the art of medicine with remedies.

Copper is a metal of a reddish or brownish colour, considerably sonorous, and very malleable. At a heat far below ignition, the surface of copper becomes covered with a range of prismatic colours, the commencement of its calcination, with more heat, a black scale is formed, which easily separates from the metal, and in a strong heat it melts and burns with a bluish green flame. The vegetable acids dissolve copper as well as the mineral ones, which makes the use of this metal for culinary purposes dangerous. The solution of copper in the vegetable acid is called verdigris. Blue copperas is formed of copper; green copperas, of iron dissolved in the vitriolic acid.

Mercury is the most fusible of all the metals; but by intense cold it becomes solid, and it is then malleable. It is heavier than any other metal, except gold or platina. It is volatile in a temperature much lower than that of boiling water; and in vacuo in the common temperature of the atmosphere. This metal is extremely susceptible of change, becoming under different degrees of heat, alternately calx or precipitate and metal.

Mercury combines readily with sulphur by trituration, and with it forms a black powder, called Ethiops Mineral. A more intimate combination of mercury and sulphur is made by means of fire. This is called cinnabar, about one third of which is sulphur. Vermillion is cinnabar reduced to powder. Mercury readily combines with most of the metals; and it is applied medicinally with great effect.

Silver is the whitest of all the metals, very ductile, but less so than gold, the thinnest leaves of it being one third thicker than those of gold. Gold is the heaviest of all metallic bodies, except platina. It appears yellow or reddish, by reflected light, but green or blue by transmitted light, when it is rendered extremely thin.

Platina is a metal lately discovered in the gold mines of Mexico.

It

It is the heaviest body in nature. It is very malleable, though considerably harder than gold or silver, and in common with iron, has the property of welding. It unites with various metals; and with copper it forms a compound, which takes a beautiful polish, not liable to tarnish, and which is therefore used with advantage for mirrors of reflecting telescopes.

SECTION VII.

Of the Vegetable Department, including the Structure, Nutrition, and Products of Plants; the Origin of Coal-mines and Volcanos; and the Frustrification, Propagation, and Unfolding of Plants.

Notwithstanding the disposition of unorganized substances to put on regular forms, and in some instances the appearance of incipient vegetation, the line which divides the mineral and vegetable departments from each other, seems to be very distinctly marked.

79. *Structure of Plants.*] The mineral possesses no evident life, no period which may be considered as the term of its perfection; because its various states are always relative to the purposes to which we intend to apply it. It does not appear either to grow, or to be reproduced; at most, it changes its form, but never by any internal determination; this is always the mere physical effect of the action of external objects, and entirely subject to the law of affinities, which is the law of bodies void of life.

On the contrary, the organization of vegetable and animal bodies, disposes them in such a manner as is suited to accomplish their temporary subsistence, and the reproduction of their species. Living plants are endowed with a principle of irritability, which seems to develop in them both sensation and motion: in some, the motion is so evident, that it may be produced at pleasure, as in the sensitive plant, the stamina of the opuntia, &c. The plants which follow the course of the sun, which in hot-houses incline towards the apertures that admit the light, which contract and shut up by the puncture of an insect, and those whose roots turn out of their direct or original course, to plunge themselves into a favourable soil or water, or to arrange themselves in the best manner, to bear up the plant against the prevailing winds, seem all to exhibit a degree of sensation of touch somewhat similar to the sensibility of animals. Their reproduction seems also to be affected in the same manner; that is, by a seed or egg duly impregnated: like them, they droop under inclemencies, and are liable to a variety of disorders; like them, look well when in health and well fed; like them, are tender and feeble in the beginning, gradually arise into vigour and beauty, occasionally need the knife, the plaster, and the proper kind of nourishment; and, like them, in age they totter, and fall to their native dust. Some have carried the similitude so far, as to say, that plants sleep when their leaves are shut

up;

up; and that young ones, like children, require more sleep than those which are of riper years. Vegetables are nourished with air, though the kind which they require is not the same with that which supports the higher orders of animals.

Every vegetable exhibits in its structure, 1. A fibrous and hard mechanism, which supports all the other organs, determines the direction, and gives the proper solidity to the several plants and their parts. 2. A cellular tissue, which accompanies all the vessels, envelopes all the fibres, contorts itself in a thousand ways, and everywhere forms coverings and a net-work, which connect all the parts, and establish an admirable communication between them.

The bark is the external covering of plants, and is composed of three particular tunics, which may be separately detached and observed: these are the epidermis, the cellular tissue, and the cortical coatings.

1. The epidermis is a thin membrane, formed of fibres that cross each other in every direction; when destroyed, it grows again, but it is then more strictly adherent to the rest of the bark, so as to form a kind of cicatrice.

2. The cellular coating forms the second part of the bark. Its texture consists of vesicles and utricles, so very numerous, and so close together, as to form a continued coating. It is among these glands that the work of digestion appears to be performed; and the product of this elaboration is afterwards conveyed through the whole vegetable by vessels propagated through all its parts and communications, even to the medullary substance or pith, by conduits that pass through the body of the tree, crossing the ligneous strata. In this net-work it is that the colouring matter of vegetables is developed: the light, which penetrates the epidermis, concurs in enlivening the colour: here likewise it is that oils and resins are formed by the decomposition of water and the carbonic acid: and, lastly, it is from this reticular substance that those various products of the organization are thrown off, or excluded; which may be considered as the fæces of the vegetable digestion.

3. The coatings, which lie between the external covering and the wood or body of the vegetable, and may be called the cortical coatings, are formed of laminæ, which themselves consist of the reunion of the common, proper, and air vessels of the plant. The vessels are not extended lengthways along the stem, but are curved in various directions; and leave openings, or meshes, between them, which are filled by the cellular matter itself. In proportion as these coatings approach the ligneous body, they become hard; and at length form the external softer part of the wood, which workmen call the sap.

The bark is accounted the most essential part of the vegetable; by means of which the principal functions of life, such as nutrition, digestion, the secretions, &c. are performed. All plants, and particularly those which are hollow within, and whose products are totally changed, by covering them with a different bark, prove evidently that the digestive force eminently resides in this part. The ligneous part is so far from being essential, that many plants are without it;

such as the gramineous and the arundinaceous, and all plants that are hollow within. Grasses, properly speaking, have only the cortical part: and plants internally decayed, are only kept in vigour by the good state of their bark.

80. *Ligneous Texture, Vessels, and Glands.*] Beneath the bark there is a solid substance, which forms the trunk of trees, and appears to be usually composed of concentric layers. The interior coatings, or rings, are harder than the exterior; they are older, and of a more firm and close grain. The hardest of these form the wood, properly so called, while the softer external rings constitute the sap. We may consider wood as being formed of fibres, more or less longitudinal, connected together by a cellular tissue, interspersed with vesicles communicating with each other; which diminish gradually towards the centre, where they form the pith. The pith is a substance similar to the bark; it is found only in young branches or plants, and disappears in plants of a certain age.

The vesicular tissue bears a great analogy with the glandular and lymphatic vessels of the human body: in both, the conformation and uses are much the same. In the early age of plants and animals the organs have a considerable expansion, because the increase of the individual is very rapid at that period; but, as age advances, the vessels become obliterated in both.

The various humours of vegetables are contained in certain appropriated vessels, in which they have a degree of motion which has been compared to the circulation in animals, but it is more under the influence of external agents than the latter. Light and heat very much determine and modify the motion of the fluids in vegetables; they cause the sap to rise into the various parts, where it is elaborated in a manner correspondent to the functions of each; but it is not observed that it returns; so that the accession, or flux, in vegetables is proved, but the reflux does not appear to be perceptible.

Three kinds of vessels may be distinguished in vegetables: the common, or sap vessels, the proper vessels, and the air vessels, or tracheae.

1. The sap vessels convey the sap, or general humour, from which all the others are derived. This liquor may be compared to the blood in animals; from it the several organs extract the different juices, and elaborate them in a proper manner. The sap vessels chiefly occupy the middle of plants and trees. They rise perpendicularly, though with deflections sideways, so as to communicate with all the parts of the vegetable. They convey the sap into the utricles, whence it is taken by the proper vessels, in order that it may be duly elaborated.

2. Each organ is likewise provided with peculiar vessels to separate the various juices, and to preserve them, without suffering them to mix with the general mass of humours. Thus the same vegetable, and frequently the same organ, contains juices of different natures, and greatly differing in colour and consistence.

The vessels, whether common or proper, are retained in their several directions by the ligneous fibres; they are everywhere surrounded by the cellular tissue; they open and pour their fluid into the glands,

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into the cellular tissue, and into the utricles, to answer the various functions.

The utricles are small vessels, or repositories, which contain the pith, and frequently the colouring matter. They form a kind of reservoir, in which the nutritive juice of the plant is preserved, and whence it is taken, on occasion, as marrow, collected in the internal part of the bones, is extracted, when the animal is not sufficiently supplied with nutriment.

3. The tracheæ, or air-vessels, appear to be the organs of respiration, or rather those which receive the air, and facilitate its absorption and decomposition. They are called tracheæ, on account of the resemblance which is thought to exist between them and the respiratory organs of insects. It is generally supposed that the large pores which are perceived in the transverse section of a plant, viewed in the microscope, are also air vessels.

The small protuberances, observed upon various parts of vegetables, are glandular bodies: they are of various forms, and are almost always filled with a humour whose colour and nature are very much varied.

§1. *Nutrition of Vegetables.*] If plants were to perform no other act than that of pumping the nutritive principles they contain out of the earth; if they did not possess the faculty of digesting, assimilating them, and forming different products, according to their nature and the diversity of their organs, it would follow as a consequence, that we ought to find in the earth all those principles which analysis exhibits to us in vegetables. If it were true that plants did nothing but extract their component parts out of the earth, those plants which grow on the same soil would possess the same principles; or at least the analogy between them would be very great; whereas we find plants of very different virtues and flavours grow and flourish beside each other. The plants which are raised in pure water, the fat plants which grow without being fixed to the earth, provided they be placed in a moist atmosphere, and the parasitical plants, which do not partake of the properties of those which serve to support them, all prove that a vegetable does not derive its juices from the earth, on account of its being earth; but that it possesses an internal, alterative, and assimilating power which appropriates to each individual the aliment which is suitable to it, at the same time that it disposes and combines that aliment to form certain peculiar principles.

Every one knows that a plant cannot vegetate without the assistance of water: but it is not so generally known that this is the aliment which the root draws from the earth; and that a plant can live and propagate itself without any other assistance than the contact of water and air.

All plants do not demand the same quantity of water; and the organs of the several individuals are varied conformably to the necessity of their being supplied with this food. Plants which transpire little, such as mosses, and the lichens, have no need of a considerable quantity of this fluid; and accordingly they are fixed upon dry rocks, and have scarcely any roots; but plants which require a larger quantity, have roots which extend to a great distance, and absorb humidity

throughout their whole surface. The leaves of plants have likewise the property of absorbing water, and of extracting from the atmosphere the same principle which the root draws from the earth. But plants which live in the water, and, as it were, swim in the element which serves them for food, have no need of roots; they receive the fluid at all their pores; and accordingly, many of them have no roots whatever.

Pure water is generally more proper for vegetation than water charged with salts; but if it be loaded with principles disengaged by fermentation or putrefaction, the plant then receives juices already assimilated to its nature, and these prepared aliments must hasten its growth. Independent of those juices, already formed, the nitrogeous gas, which constitutes one of the nourishing principles of plants, and is abundantly afforded by the alteration of vegetables and animals, must facilitate their developement. A plant supported by the remains of vegetables and animals, is in the same situation as an animal fed on milk only; its organs have less difficulty in elaborating this drink than that which has not yet been animalized.

Although it be well proved that pure water is sufficient for the support of plants, we must not consider the earth as of no use. It resembles, and has a similar utility with the various reservoirs which are placed in the body of man, to preserve the several humours, and emit them upon occasion. The earth imbibes and retains water: it is the reservoir appointed to preserve the elementary juice which the plant continually requires; and to furnish that fluid in proportion to its wants, without exposing it to the equally destructive alternatives of being either inundated or dried up. On this account, the nature of the soil cannot be a matter of indifference, but must be varied according to the nature of the plant. Siliceous and calcareous earths may be considered as hot and drying, the argillaceous as moist and cold, and the magnesian as possessing intermediate properties: clay absorbs water, but does not communicate it; calcareous earth receives and gives it too quickly; but the properties of these earths are so happily opposed, that they correct each other by mixture: accordingly, by the addition of lime to an argillaceous earth, this last is divided; and the drying property of the lime is mitigated, at the same time that the stiffness of the clay is diminished. The advantage of labour consists in dividing the earth, aerating it, destroying useless or noxious plants, and converting them into manure, by facilitating their decomposition; and the dung which is mixed with earths and decomposed, not only affords alimentary principles, but likewise favours the growth of the plant, by that constant and steady heat which its ulterior composition produces.

Before the constituent principles of water were known, it was impossible to explain, or even to conceive, the growth of plants by this single aliment. If the water were an element, or indecomposable principle, it would afford nothing but water, in entering into the nutrition of the plant, and the vegetable would of course exhibit that fluid only; but when we consider water as formed by the combination of the oxygenous and hydrogenous gases, it is easily understood that this

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this compound is reduced to its principles ; and that the hydrogenous gas becomes a principle of the vegetable, while the oxygene is thrown off by the vital forces. Accordingly, we see the vegetable almost entirely formed of hydrogen or inflammable air : oils, resins, and mucilage consist of scarcely any thing but this substance. The decomposition of water is proved not only in vegetable, but likewise in animal bodies. Fishes live and grow when supplied only with water ; and the gold and silver fishes which are kept in glass vessels, with every disadvantage of their unnatural situation, if well attended to with change of water, derive a languid support from it, when other supplies are withheld from them.

As it is the nitrogenous part of the atmosphere that plants require for their support, or aliment, vegetation is more vigorous when putrid animal or vegetable bodies, which afford this gas, by their decomposition, are presented to the plant. It is difficult to conceive what may be the effect of the nitrogen upon the vegetable economy, as it cannot be followed after its introduction into the plant, and is only found again on the decomposition of the vegetable, when it reappears in its gaseous form.

The carbonic acid, which is dispersed in the atmosphere, or in waters, seems also to be absorbed by plants. The base of this acid even seems to contribute to the formation of the vegetable fibres ; for, on bringing the fungus and other subterraneous plants in which the acid predominates, to the light, the acid nearly disappears, the vegetable fibres are proportionably increased, and the resin and colouring principles are developed by the oxygene of the same acid.

Though light be generally necessary to plants, as without it they become pale, languish, or die, it has not been proved that it enters as an aliment into their composition ; it seems rather to be a stimulus or agent, which helps to decompose the various nutritive substances, such as air, carbonic acid, and water, carrying off their oxygene, while their other parts become fixed in the plant itself.

The most immediate effect of the fixation of the various substances, and the concretion of the liquids, which serve as the food of plants, is a sensible production of heat, which tempers the cold of the atmosphere. On the other hand, the evaporation which takes place through the whole body of the tree, moderates the scorching heat of the sun's rays.

82. *Products of Plants.*] Mucilage appears to constitute the first alteration of the alimentary juices in vegetables. Most seeds are almost totally resolvable into mucilage ; and young plants seem to be entirely formed of it. This substance has the greatest analogy with the mucous fluid of animals. Like that fluid, it is most abundant in the earlier periods of life, and all the other principles appear to be derived from it ; and in vegetables, as well as animals, its quantity becomes less in proportion, as the increase of magnitude, or growth of the individual becomes less, or ceases. Mucilage is not only the nutritive juice of plants and animals, but when extracted from either, it becomes the most nourishing and wholesome food we are acquainted with,

Mucilage forms the basis of the proper juices, or the sap of plants. Gums are dried mucilage: they flow naturally from the trunk of the tree which affords them, or they are obtained by incision of the bark, and are used in the arts and in medicine.

Two sorts of oils are obtained from plants; the fixed and the volatile. The difference between these two kinds of oils does not merely consist in their different degrees of volatility, but also in their habitudes with their several reagents. The fixed, or fat oils, are insoluble in alcohol, but the volatile or essential oils are easily dissolved: the fixed oils are in general mild; while the volatile are acrid, and even caustic. It appears, nevertheless, that the oily principle is the same in both; but it is combined with mucilage in the fixed oils, and with the spiritus rector, or aroma, in the volatile oils.

From the concretion of the oils are formed wax, camphor, resins, balsams, gum-resins caoutchouc or elastic gum, and varnish. Sugar is obtained from a variety of plants. It is afforded by the sugarcane, bamboo, the maple, birch, wheat, and other grain; the roots of beet, parsnips, dried grapes, &c. Vegetables also afford acids and alkalis, and colouring principles; and they exhibit, in their analysis, certain metals, such as iron, gold, and manganese, besides the different earthy substances.

The fecula of vegetables appears to be only a slight alteration of mucilage. The feculæ, such as salep, sago, starch, those of potatoes, cassava, bryony, &c. are used in diet, medicine, and the arts.

The vegetable gluten, called by some the vegeto-animal, on account of its properties resembling those of animal substances, is more particularly obtained from gramineous vegetables. To make the analysis of any farina, a paste is formed with the flour and water; and this is kneaded and wrought in the hands under water, till it no longer communicates any colour to that fluid. In this operation, the fecula falls to the bottom, while the gluten remains in the hand, and is tenacious, ductile, and very elastic. It becomes more and more adhesive, in proportion as the water which it had imbibed flies off by evaporation, when it has all the appearance and properties of an animal glue. Freshly made gluten, exposed to the air, readily putrefies; and when it has retained a small quantity of starch, this last passes to the acid fermentation, and retards the putrefaction of the gluten; and in this way, a state is produced, resembling that of cheese.

It is to this gluten that wheat owes its property of making a good paste with water, and the facility with which it rises. The gluten is sometimes destroyed by the fermentation of flour; by which change, it is deprived of the wholesome qualities it before possessed, and is incapable of rising and forming good bread.

Farina, or flour, is composed of three principles: the amylaceous principle, or starch, the saccharine principle, or sugar, and the glutinous or animal principle. Each of these principles is capable of a different kind of fermentation; the saccharine principle undergoes the spirituous fermentation; the glutinous suffers the process of animal putrefaction, and the amylaceous is changed by the acid fermentation. The panary fermentation may, therefore, be considered as an union

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of these three different spontaneous changes. But as soon as the leading phenomena of the fermentation are well developed, and the principles already well mixed and assimilated, have by this means suffered a change of their respective natures, the fermentation is stopped by baking; and the bread is found to be much lighter in consequence of these preliminary operations.

The art of making bread was not known at Rome until the year of the city 585. The Roman armies, on their return from Macedonia, brought Grecian bakers into Italy; before which time the Romans prepared their flour, by making it into pap, or soft pudding; for which reason, according to Pliny, they were called Pulmentarii, or eaters of pap.

93. *Origin of Coal-mines and Volcanos.*] Having taken a cursory view of the vegetable economy in plants, as they grow, and noticed some of their products, we may now just glance at their end, and then more particularly consider the manner of their reproduction. It is well known that they are laid continually hold of, by man and brute, as the means of subsistence; all animals, from the elephant to the insect, derive their support from the vegetable department; even the carnivorous tribes, though not so immediately, are yet equally indebted to it for their existence; the creatures which form their prey having first derived their food from plants; and all tribes of creatures, whether plants or animals, when dead, are reducible to the dust of the ground. Their spoils, when amassed together, and buried in the earth, form the strata of pit-coal, and other inflammable substances. Naptha, petroleum, mineral pitch, asphalt, and amber, are only slight modifications of the bituminous oil, so abundant in pit-coal. A few forests being buried in the earth, are not sufficient to form the mountains of coal which exist in its bowels. A greater cause, more proportioned to the magnitude of the effect, is required; and we find it only in that prodigious quantity of vegetables which grows in the seas, and is still increased by the immense mass of those which are carried down by rivers. These vegetables, carried away by the currents, are agitated, heaped together, and broken by the waves; and afterwards become covered with strata of argillaceous, calcareous, or other earths, and are decomposed. The formation of the pyrites, as well as that of coal, arises from the decomposition of vegetable and animal substances; and pit-coal is generally a mixture of pyrites, schistus, and bitumen. The different qualities of coal arise, therefore, from the difference in the proportions of these principles.

The best coal is that in which the bituminous principle is the most abundant; it swells up when it burns, and the fragments adhere together. It is more particularly on this quality that the operation of cooking of coal depends: an operation analogous to that in which wood is converted into charcoal.

When the schistus, or slaty principle, predominates in coals, they are then of a bad quality, and their earthy residue is more considerable.

When the pyrites is very abundant, the coal exhibits yellow veins of the mineral, which are decomposed when they come in contact with the

the air or water. This sometimes causes inflammation; and if this be excited on considerable masses, the dreadful volcano, and the still more alarming and terrible earthquake are produced.

The volcano discharging, with a noise like that of thunder, torrents of flame and sulphur, and rivers of melted metal, and throwing out clouds of smoke and ashes, with rocks of enormous size, to many miles distance; its cataracts of liquid fire, rushing down the sides of the mountain, may bury plantations, villages, and even cities under the massy deluge; a province may be filled with consternation, hundreds may perish, and thousands flee and find safety; but the terrors of an earthquake, what tongue can describe! To attempt to flee the convulsed region would be in vain: the concussion spreads perhaps some thousands of miles, and none know the place where the earth may yawn and swallow up the people together with their possessions. In these awful moments the astonished inhabitants are also deprived of the means of flight, by the shaking of the earth; they are lifted up as upon waves, and cannot keep their feet: the hills are no certain protection; mountains fall in, and vallies arise; cities are buried under ground, or overflowed with water; islands, new and unexpected, arise in the sea; and refuge is only to be found in resignation.

Volcanos are to be met with in every quarter of the globe: Sicily and the south of Italy have been long famed for their burning mountains and dreadful earthquakes; in these, many a fine city has been swallowed up or overwhelmed.

Within the present century, many dreadful eruptions and earthquakes have happened in parts of the world we are acquainted with, as at Calabria, Jamaica, and Lisbon; and at Sicily, in 1693, nineteen thousand of the inhabitants of that island perished; the city of Catania was totally overthrown, and the shock felt in Germany, England, France, &c. to a circumference of two thousand five hundred leagues. There are few countries that do not shew marks of these dreadful convulsions in nature in their conical hills and cleft and broken rocks: ancient as well as modern history furnishes dismal accounts of their devastations; and as there are volcanos in every quarter of the globe, it seems not unlikely but their ravages may be quite as dreadful among those extensive and numerous nations who have not learned the art of recording their history.

It is when the decomposition of the water and the pyrites is advanced, and the hydrogenous gas, with other vapours thus produced, can no longer be contained in the bowels of the earth, that the ground is shaken, and exhibits the phenomena of earthquakes; and when the concurrence of air facilitates the combustion of the bitumen and the hydrogenous gas, an eruption takes place. Mephitic vapours are multiplied on the surface of the ground, and dreadful hollow noises are heard; the rivers and springs are swallowed up, or ejected with greater violence: a thick smoke mixed with sparks and lightning, is then disengaged from the crater. To these preludes, which shew the internal agitation to be great, and that obstacles oppose the issue of the volcanic matters, succeeds an ejection of stones and other products, which the lava drives before it; and lastly, a river of lava flows out.

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At this period, the calm is restored in the bowels of the earth, and the eruption continues without earthquakes. The crisis is sometimes succeeded by a discharge of ashes which darken the air. These ashes are the last result of the alteration of the coals; and the matter which is first thrown out, is that which the heat has but partially melted or vitrified.

Plants, in their decay and fall, are reduced to vegetable earth; but their seeds having in them a principle of life, are unfolded in the general wreck, by the very principles which produce it; and thus, even by the passing away of one generation, another is brought forward.

Vegetable mould usually constitutes the first covering or stratum of our globe, and in those instances, where it is discovered at a depth in the earth, there seems to be little doubt but it has been buried there by some revolution. When a vegetable is converted into earth, and mixed and confounded with the solid earths and metallic products, it still retains the vegetable principles, though changed; and may therefore be considered as an intermediate substance between crude and organic bodies, which participates of the inertia of the one, and the activity of the other; and which in this state is still subject to an insensible fermentation, that changes its nature still more, and deprives it of all its organic contents. The plants which grow in this vegetable mould, in the mean time, impoverish it, by deriving their food or nutritive juices from it; and there remain only the earths and metallic residues which form the stiff poor soils, and the ochres when the ferruginous principle is very abundant. It is in these earths that diamonds, quartz, crystals, spars, gypsum, &c. are found: it is in this matrix that the bog ores, or ochrous ores of iron, are formed; and it appears that the impoverished residue of vegetables has been reserved for the reproduction or reparation of the earthy and metallic substances of the globe, while the organic remains are made to serve as nourishment for the succeeding generation of vegetables.

84. *Fruetification of Plants.*] The preparation of the seed in plants is a delicate operation: to understand which, it seems necessary to consider the parts employed in fructification: these are generally the calyx, or flower-cup, the corol or flower, the stamens, the pistil, the pericarp, and the seed: all these together form the flower and fruit.

The calyx is an extension of the outer bark or rind of the plant, diverging and forming a kind of couch for the support of the other parts. The corol is produced from the inner bark of the tree or plant, and seems designed to protect the stamens and pistil from any injury which might occur from external causes: it varies in shape, colour, and number of petals. The nectary sometimes forms an appendage to it, and secretes the honey of plants. The stamens are produced from the wood of the plant, and consist each of a filament or thread, and an anther or button on the top of the filament. The pistil is produced from the medullary part of the plant, and consists of the stile or column, and the stigma or capital, at its extremity. The stile rises from the germ, which is called, when fully grown, the pericarp, from its containing the seed.

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The preparation of the seed in plants seems somewhat similar to the sowing of seed in the earth. When the calyx opens and the corol expands, the stamens usually occupy a kind of interior circle, and surround the pistil. The pollen, or fecundating dust, elaborated by the anthers, is absorbed by the stigma, and passing down to the germ through the tubular body of the stile, vivifies the seed. When this is performed, the end of florescence is answered, and the stamens, pistil, and corol, gradually decline, to make room for the increasing seed, which at length is matured in the pericarp.

The stamens and pistil generally repose on the same flower; sometimes they are upon the same individual plant, but placed upon different flowers, and at other times they are isolated and separate plants: in these latter instances, there may appear some difficulty in conceiving how the pollen or fecundating powder of one flower is brought to fall with minute nicety on the stigma of another, which in some cases may be very remote; and this is differently accounted for. It has been supposed, that flies may be the agents employed in this business; that the pollen sticks to their little legs while they taste the sweets of one flower, and drops off while they renew their repast at the other. We readily imagine that these wayward, disportive, and restless creatures, ever dressing or rubbing up their little bodies, wings, and limbs, are unwilling to carry any burthen but what they intend for their own little purposes; but then it may be observed, that their very wants or necessities may induce them unwittingly to labour for others as well as for themselves; and that thus they may bear their part in the great garden of creation, to dress and to keep it. To instance this in bees; the wax is merely the pollen of flowers, very little altered. These insects have their thighs prepared with rugosities, to brush the pollen from the anthers, and convey it to their nest. Shall the labourer during his toils, go without his refreshment? or shall he return to his hive with nothing but wax? The flowers which have only anthers, do not in general afford honey; this nectar of flowers is contained chiefly in the base of the pistil. He seeks the plant which affords it, plunges in his proboscis, and extracts the delicious fluid. If he do not drop any of his load of wax or pollen, he may at another time renew his repast: but if any of it fall, it is absorbed, the act of conception is accomplished, or the seed is impregnated, and the organs which afford the nectar dry up and wither from that moment, while the seed ripens to maturity. The nectar frequently retains the odour and other qualities of the plant which produced it. Now if our labourer had a choice in his wax, will he not by the same taste take his honey from a plant of the same species which afforded him his load? where only the pollen can produce the intended effect.

The pollen is also carried about by the winds; and if an attraction exists between it and the pistils of plants of the same species, it may hereby be drawn to them: in fact, must it not, if, in floating about, it gets within the sphere of the effluvium or odour of such plants, though imperceptible to our dull senses, must it not as naturally fall to them, as the needle marks out the magnetic pole?

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A correspondent informs me, that many instances founded on real observation, may be educed to substantiate the certainty of this attraction; that one has come within his own remark; viz. that wheat of the purest white, sown and resown, without a mixture of any other wheat, by having been surrounded by red wheat, in a few years graduated from white to red, till at length it bore no contradistinction to the latter.

The process established for the fructification of water-plants is admirable. The water-lily, by a stalk still lengthening proportionate to the depth of water, rises through, bears its beautiful flower constantly buoyant over the surface, until its seeds are rendered fruitful, when their capsule sinks beneath, generally many feet below the surface of the water. In the *vallisneria* of Italy, the pistil and anther grow upon different plants: the former is permanent; but the latter, while both are blooming, is detached from its stalk, and floats to and fro among the permanent blossoms, bearing along the fecundating powder, or pollen.

Even art is made use of to effect the above objects. The fruit-bearing palm of the east bears fruitful, or we may say, seed-yielding blossoms, on one tree, and barren (or only pollen-yielding blossoms) on the other. Early historians have recorded, that the branches of the latter were used to fructify the former; and the practice is continued in Asia to this day.

In objection to this system, it has been said, that a multitude of hybrid plants would be a consequence, if it were real. But it has been discovered by the microscope that the specific formation of the pollen is perfectly adapted to the interstice of the stigma, and that it could no more insinuate with a totally different species, than the indented curvature of one paper can exactly correspond with that of another with which it was not indented. Varieties may have been obtained with a mixture of different species of the same genus; but this is not more a departure from nature than what may be found in the forest or the field, in the casual variation of colour, in the plumes of birds, and the petals of flowers. Our pigeon and canary-bird fanciers avail themselves of the variety of those species, to form commixtures of colours; as doth the florist in his gaudy department; yet they have not been able to produce a specific genus.

Voluminous are the works which have been written, especially in later times, on the science of botany; and the classes and orders, the genera and species, with their varieties, are necessarily very numerous. Charles Linnæus was the first who constituted the stamens and pistils as the basis of an artificial method of arranging plants; and, in his *Classes Plantarum*, says, that he was led to this, by considering the great importance of these parts in vegetation. They alone are the essentials necessary to fructification; all the other parts being wanting in some flowers. The Linnæan system, which is founded on the sexuality of plants, admirable as it is, considered analogically, or in a philosophical view, would have perhaps been still more acceptable to the present taste, had the divisional terms been expressive only of number and situation. But, rapt in the idea of animation among his vegetables,

tables, the genius of our author has seen, in the beautiful symmetry of plants, not only the orders which seem to harmonize in society, the brotherhoods, and other endeared connections in domestic life, but also those whereby human life is distracted. In the lofty and towering plants, he sees nobles; in those of lower stature, plebeians; and in the unequal distribution, &c. of the pistils and stamens, he discovers polygamy, and unequal powers or governments.

The system of Linnæus is now generally received as the most conformable to nature of any yet offered to the world; and, if we may admit his application of the orders or disorders in society to the economy of plants, his system has this peculiar excellence, that the very name of each vegetable gives us its description. His system, however, is imperfect, because the works of creation are so infinitely varied, as to elude every attempt of man fully to comprehend them under artificial arrangements.

The study of botany is not merely an elegant amusement, a beautiful display of the economy established in the vegetable department; but, from the varied uses of plants in food, medicine, raiment, and the other arts, it is often of real service to mankind.

Many animals are endowed with an instinctive faculty of distinguishing with certainty those plants which are suitable for food, from those which are noxious. Man, in his present artificial state of being, has no such instinct; he must have recourse to experience and observation; and these are not always sufficient to guide him. Before the vegetables that grow in America, the West India islands, and the East Indies, became familiar to the Europeans, these people, after long voyages, and a constant use of salt provisions, were often allured by the agreeableness of smell and taste, to eat poisonous fruits: perhaps they were pressed by necessity, and eat the vegetable produce which appeared to them the most likely to afford them wholesome food. Many lives were lost by trials of this kind, while they were ignorantly trampling under their feet plants which would have afforded them good nourishment, and been highly grateful to them. A little skill in botany might have prevented such mistakes. For example, a person skilled in botany, on perceiving the flower of a plant, whose calyx is a double valved glume, with three stamens, two pistils, and one naked seed, can pronounce with certainty that the plant from which the flower was taken, bears seeds of a farinaceous quality, consequently they may be safely used as food. In like manner, shew him a flower with twelve or more stamens, all inserted in the internal side of the calyx, he can pronounce the fruit of it to be wholesome. On the other hand, shew him a plant whose flower has five stamens, one pistil, one petal, or flower leaf, and whose fruit is of the berry kind, he cannot hesitate to pronounce it poisonous.

We have regarded the plant as it stood, the effects of its decomposition or decay, and the delicate process of fructification; we may now consider the unfolding of the seed when in the earth.

To descend from the ripened vegetable to the development of the infant plant, may seem a retrograde, or unnatural movement, as the plant or vegetable is generally understood to grow from the seed. The

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fact however is, that while we see in the works of art a design, a beginning, and a completion and end of the work ; in nature we discover a perpetual circulation ; and whatever part we start from in running over the works of creation, if we follow the natural course, we must move in a sort of circle, and at last return to the place we set out from ; or, like the pendulum, be kept in a continued state of oscillation in all our attempts to discover the beginning of things. To finite capacities they are utterly incomprehensible. Whence, for instance, come the rivers that continually flow into the sea ? From the rain. Whence the rain ? From the clouds. Whence the clouds ? From the sea. What power converts food into nutriment ? The principle of life in the creature. What supports the life or power ? The food which the creature receives. Whence comes vegetable earth ? From the decay of plants. Whence plants ? From vegetable earth. Plants grow from seeds. Whence come seeds ? They are the produce of plants.

85. *Unfolding and Growth of Plants.*] In the young plant, or embryo, the labour of digestion is not intrusted to the feeble and tender germen. The seed is formed of a parenchyma, which imbibes juices from the earth, elaborates them, and does not transmit them to the inclosed germen until they are reduced into proper nutriment. By insensible degrees, the parenchyma is destroyed ; and the infant plant becomes sufficiently strong, and performs the work of digestion without assistance. In the same manner it is that the placenta, which of itself affords no support to the life of the foetus, prepares and disposes the humours of the parent to become a suitable nourishment ; but when the animal is brought forth, it receives for nourishment a fluid less animalized, its organs are gradually strengthened, and at length become capable of digesting a stronger and less assimilated nourishment.

The seeds of plants are of various figures and sizes. Most of them are divided into two lobes, though some have more ; and others appear undivided and entire ; but their essential properties, when considered with regard to the principles of vegetation, are all the same.

The great garden-bean is a seed whose parts are remarkably conspicuous : it is covered with two coats or membranes ; within these the body of the seed, divided into two portions or lobes, is externally smooth, from its being covered with a thin film or cuticle ; its substance is not a mere concentered juice, but is curiously organized, and consists of a vast number of small bladders, filled with parenchyma, or pulp ; and in the heart of this lies the embryo plant. At the thick end of the bean there is a small hole, visible to the naked eye, immediately over the radicle, or future root, that it may have a free passage into the soil. 1st, The plume, bud, or germ, and the radicle, are in colour and consistence much alike ; or, in other words, they are the different extremities of the same body ; till time unfolding their parts, the radicle descends down, and takes root in the earth, the bud arises into all the beautiful variety of stem, branches, leaves, flowers, fruit, &c. 2d, Within the radicle there is contained a substance, called the seminal root, which divides into three branches ; the middle one runs directly up to the plume, the other two pass into the lobes

lobes on each side, and send forth smaller branches through the body, till their ramifications become quite minute on the surface of the lobes. When the seed is sown, and the moisture of the earth absorbed by the outer coats, finds its way into the pulp, or inner part of the lobes, the minute branches of the seminal root take up the moisture, and convey it into the main trunk: the sap thus supplied, runs in two opposite directions; part of it ascends into the plume, and promotes the growth and expansion of that organ, and part of it descends into the radicle for nourishing it, and evolving its various filaments; when the radicle begins to take root in the earth, and to absorb some moisture, not however in a sufficient quantity to supply the exigencies of the plume, the two lobes rise along with the plume, assume the appearance of two leaves, defend the young plume from the injuries of the weather, and at the same time, by absorbing dew, air, &c. assist the tender radicle in nourishing the plume, with which they still have a connection, by means of the seminal root, above described. But when the radicle, or second root has descended deep enough into the earth, and absorbs of itself sufficient nourishment for the plume, these seminal leaves, which differ in shape from the other, begin to decay and fall off. And in this way is every plant, growing from seed, possessed at first of two roots, both of which are contained in the seed, undergo the changes, and answer the purposes already mentioned. Plants, beside their growing from seeds, are raised, some from any part of the root set in the ground; others by new roots that are propagated from the old ones, as in tulips; others by offsets; in others, the branches set in the ground will take root and grow; and, last of all, grafting and inoculation, in certain sorts, are known ways of propagation.

Plants may be divided into herbs, shrubs, and trees: herbs are those plants whose stalks are soft; as grass, fow-thistle, or hemlock; shrubs and trees are of a firmer texture; the difference between these latter is, that shrubs grow not to the height of trees, and usually spread into branches near the surface of the earth; whereas trees generally shoot out in one great stem or body, and then, at a good distance from the earth, spread into branches; thus, gooseberries and currants are shrubs, oaks and cherries are trees.

Whatever part of a plant we examine, we shall find its whole substance to be a congeries of tubes, vessels, and fibres, with their contained pulp or fluids; the root, the trunk, or stalk, the branches, and even the leaves, flowers, and fruits, all answer this description. The roots, trunks, and branches of trees, each generally comprehend three different parts; the pith, or core at the centre; next to this the wood, and surrounding these, the bark; the bark is also covered with a skin; the pith and the bark are similar substances; the parenchyma, or pulp of these, seems to be composed of small cells, or bladders, and through the woody part of the plant, especially in the root, the bark is inserted like rays towards the centre. The true wood is a congeries of these tubes dried. Between the bark and the wood, a new ring of these ducts is formed every year, which gradually loses its softness as the cold season approaches, and, towards the middle

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of winter, is condensed into a solid ring of wood. These annual rings, which are distinctly visible in most trees, when cut through, serve as natural marks to distinguish their age. The rings of one year are sometimes larger, sometimes less than those of another, probably owing to the favourableness or unfavourableness of the season. The leaves, flowers, and fruit of trees, are organized like the trunks, and composed of the same substance, differently modified, or farther refined.

The figures on Plate VI. are illustrative of what has been advanced on the growth, structure, and fructification of plants.

Fig. 50. A, the foramen, or hole in the garden-bean, through which the radicle shoots into the soil.

51. A transverse section of the bean; the dots being the branches of the seminal root.

52. A, The radicle. B, The plume, or bud.

53. Longitudinal section of one of the lobes of the bean, showing the small bladders, of which the pulpy or parenchymatous part is composed.

54, 55. A, A transverse section of the radicle. B, A transverse section of the plume, shewing the organs, or vessels of the seminal root.

56. Seminal root branched out upon the lobes. 57. Appearance of the radicle, plume, and seminal root when a little further advanced in growth.

58. A small part of the transverse section of the pulpy part of a pear magnified, shewing A, the acetary, or inner parenchyma, which joins to the core. B, The outer parenchyma, formed of globules or grains, ligneous fibres, and radiated vessels. C, Ring of sap-vessels and skin.

59. A transverse section of the root of wormwood, as it appears to the naked eye.

60. Section of 59 magnified. A A, The skin with its vessels. B B, the bark; the round holes. C C C, Are the lymph-ducts of the bark; all the other holes are little cells and sap vessels. D D D, Parenchymatous insertions from the bark, with the cells, &c. E E E, The rays of wood, in which the holes are the air-vessels. — N. B. This root has no pith.

61. A transverse section of a branch of ash, as it appears to the eye.

62. Section of 61 magnified. A A, The Bark. B B, Arched rings of sap-vessels, C C, The parenchyma of the bark, with its cells. D D, circular line of lymph-ducts. E E, The wood. F, First year's growth. G, Second. H, Third year's growth. I I I, The true wood. K L, Air-vessels. M M M, The parenchymatous insertions of the bark represented by the white rays. N O, The pith, with its bladders, or cells.

The parts of fructification, already described, are pretty well exhibited in the lily, and other flowers of the liliaceous tribe, except that the calyx, which accompanies almost all other flowers, is wanting in the greater part of these.

63. a, The

63. *a*, The flower in bud. *b*, The corolla expanding. *c*, The corolla quite open.

d, The pistil, or pointal. *e*, The germ. *f*, The stile. *g*, The stigma.

h, The six stamens. *i*, The filaments. *k*, The anthers.

l, The germ advanced into a pericarp, which is here a capsule.

m, A transverse section of the pericarp, to show the three cells and the seeds.

SECTION VIII.

The Animal Department; including the Structure and Nutriment of the Body, the Circulation of the Fluids, &c. and the Division of Animals into Quadrupeds, Birds, Amphibia, Fishes, Insects, and Worms.

86. *Comparison between Animals and Plants.*] We are now come to consider the last, the noblest, and the most beautiful part of the creation: the creatures for whom this earth seems to have been entirely formed, and for whose repast or use the whole of its unintelligent productions appear to have been brought forth: these are the animated tenants of our globe. All animals appear to be endowed with a degree of understanding or perception, and choice or will. This, more than their formation, appears to distinguish them from the insensible vegetables whereon they feed. Though there appear, at first view, this most evident distinction between an animal and a plant, yet some of these very different kinds of creatures assume an appearance so exactly like each other, that philosophers, in considering them, seem at a loss to determine where animal life begins, or vegetative ends. The sensitive plant shrinks at the touch; but this, perhaps, mechanically proceeds from the interruption of the fluids in its tender vessels. Some plants seem possessed of voluntary motion, presenting their flowers to the rays of the light, and pursuing the sun from east to west, rejoicing in its beams; but this is also mechanically accounted for. It is well known that a certain degree of heat relaxes the tone of the vegetable organs, and at the same time proportionably evaporates the fluids which these organs contain. Now, to whatever side of the plant the heat is principally applied, there, of necessity, must also be the greatest flaccidity of the fibres, and the greatest evaporation of the fluids; of course, from the law of gravitation, the flower, indeed the whole plant, must incline to that side from whence the light or heat proceeds. Vegetables also are fixed to one spot, and must wait for accidental supplies of nourishment. Their roots are fitted to absorb every fluid that comes within their reach: they have been found by experiment to imbibe fluids that actually poison them. The case appears to be very different with animals; they have a choice in their food; and if one place does not supply it, they seek it in another, and take what is best suited to their constitutions;

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constitutions; they seek preservation from superior force and violence in flight, art, or mutual combination: even the lowest tribes of animals, which, from their simple formation have been called zoophytes, a name implying a vegetable substance endowed with animal life, are found to skulk or fly on the appearance of even distant danger: thus the polypus contracts its horns, and the star-fish its arms; the earth-worm contracts itself, and hides in the earth when disturbed: shell-fishes, and insects also, of the most inert kind, are furnished with means of defence, which they avail themselves of with diligence; insects make their way into plants and other bodies, and there lie secure; the Pholades fishes, merely by working with their tongues, dig themselves apartments in solid rocks; and even the dull oyster can open or close up its shells.

87. *Constitution and Propagation of Animals.*] It is a received opinion among naturalists, that an animal body is a compages, or complicate system of vessels, with their contained circulating fluids, variously disposed, to form parts of different figures for different uses. The antients supposed that the heart and brain were first formed, and that the other parts proceeded from them. The moderns, by the help of glasses, have discovered the figure of the animal at a very early period of its existence; and some have thought that all the parts exist in miniature, from the first formation of the foetus; but the wonderful operations in the natural world, when attempted to be traced to their source, become so extremely delicate and minute, as to escape the nicest observations of man, assisted with the most ingenious contrivances of art.

Animals are generally divided into male and female, and some are both male and female, and called hermaphrodites, as the earth-worm, and some others. With regard to their manner of propagation, they are divided into oviparous, bringing forth eggs; and viviparous, bringing forth their young alive. The oviparous are extremely prolific; the spawn of fishes, the eggs of birds, of serpents, and of insects, are almost innumerable; those of the insect tribes appear to be everywhere scattered abroad, and by the heat of the sun, of putrefying bodies, and by various other causes, to break forth into animation in places so unexpected, that some have had recourse to a supposed new creation, to account for their sudden appearance. These minute animals make their appearance as reptiles, or as small fishes, and move about for a time; they are shut up in a narrow cell closely surrounding their bodies; and under the names of aurelia, &c. seem entombed for a season; they burst their narrow mansions, take wing, and are for ever busy during the very short period of their enlarged existence. The embryo of the viviparous kind, naturalists tell us, is also an egg impregnated like the other; it appears, however, to be of a more delicate constitution, and only capable of being matured in the body of the animal.

The human body is accounted the most exquisite in its formation; and the nearer the other animals approach to this, the higher degree of sagacity they seem generally endowed with.

The food which we take, being chewed and mixed with the saliva, and thereby rendered fit for digestion, descends into the stomach; where, being still further thinned by the juices there, and undergoing a gentle warmth and attrition, it is digested and thrown into the alimentary canals by the peristaltic, or wormlike motion, of which, and the compression of surrounding muscles, it is carried along: being now mixed with the bile, and the juice of the pancreas, or sweet-bread, the gross parts are protruded through the bowels. The bile is secreted by the liver; the gall-bladder is a kind of reservoir for it; and it is from this that it is supplied for the purpose of the animal economy; the nutritive, or thin and milky chyle, is absorbed by the lacteals (hair-like tubes spread on the small intestines) through which it passes to the receptaculum chyli, and thence through the thoracic duct and left subclavian vein, mixing with the blood, it enters the heart.

88. *Digestion of Food, Circulation of the Blood, Breathing, &c.*] And now, having got to this living and powerful spring of action, which waits not to be renewed by the application of winches, or the winding up of wheels; but whether we sleep or are awake, by night or by day, like an unwearied and faithful labourer, with muscular exertions, continually distributes the vital stream through our complicated frame, till their varied functions cease, and the tenement of clay is inhabited no more. Having got to the heart, in surveying the animal economy, we might hence take our departure; and following the blood in its circulation through the body, we might explore the inmost recesses of this wonderful piece of mechanism, we might see it when all was in health and in vigour, every part ready to spring into action, or all at ease; we might observe the thousands of changes it is incident to, enervated by labour or enfeebled by age; racked by pain, and disordered by every kind of excess; we might observe it agitated by the passions, oppressed with grief, and finding relief in a sigh or in tears, invigorated with hope, convulsed with laughter, animated with joy, tremulous with fear, or with anger; and, with the excess of any of these, brought to its end. We might mix with the features, see them growing into expression, observe paleness or a blush betraying the secret emotions of the soul; the eye and ear we might minutely examine; see how they convey information to the mind through the medium of the brain, amuse it with various objects of beauty, or captivate it with the bewitching melody of sounds; we might notice the disorder in its most exquisite parts, when from intense application, and various other inexplicable causes, reflection goes astray, and the patient is insane; but man is beyond the comprehension of himself: the philosopher may enquire, and the physician draw his conclusion; their theories may be specious and oftentimes just, but it seems they must be short; and the more they enter into this extensive field of enquiry, the more they will ever see before them for examination and for conjecture.

The heart, as described by anatomists, is a muscle of a conic figure, furnished with its cavities, valves, and tubes, as an hydraulic machine. We may conceive some idea of its motions, by observing the mechanism and effects of a pump, or a common pair of bellows:

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from the veins the blood enters the cavities or ventricles of the heart, through openings called auricles; the ventricles contracting, the blood is thrown through the arteries all over the body. This circulation may be defined to be a perpetual motion of the blood, in consequence of the action of the heart and arteries, which impel it to all parts of the body, and it is brought back by the veins. The arteries, at their first branching out from the heart, are large tubes, called aortæ; the veins, at their entering the heart, are also large tubes, called venæ cavæ. From the minute branches, or extremities of the arteries distributed through the body, arise the veins and the lymphatics; the veins to receive the blood, and return it to the heart: the lymphatics to carry off the lymph, or thinner part of the blood; to keep it in a right temper for flowing through the veins, and to distribute the lymph to the chyle in its passage to the heart, for the purpose of diluting and preparing it to incorporate with the blood.

Although the chyle keeps perpetually flowing into the blood, yet no redundance ensues, because the mass of fluids and the blood are continually changing; new blood is perpetually forming from the chyle, and the old blood is secreted, forming other fluids, as the saliva, bile, &c. or breaks down into putrescent mucilage, and is carried off by exhalant vessels fitted to receive it, though they refuse egress to the particles of blood.

Of the fluids secreted by the different glands, the sweat is not the smallest discharge we experience; the effluvium, continually thrown off by the respiration of the lungs, we are told, far exceeds it, but is, in fact, the same evacuation through different channels: hence, those who perspire the most in summer, their pores being closed by cold in the winter, and the discharge thrown upon the lungs, become peculiarly liable to asthmatic complaints, especially if the atmosphere be already too humid to receive the discharge.

The lymphatics are an extremely delicate and transparent system of vessels, numerously supplied with valves, which for many ages eluded the investigation of anatomists, but are now found to exist very numerously in all parts of the body; and are evidently designed to take up the superabundant fluids, everywhere diffused into all the cavities and minutest interstices of the body, which would otherwise accumulate, and be productive of inconvenience and disease, as is shewn in dropsy, when these vessels fail to perform their office. By these vessels the fluids, thus deposited to lubricate the innumerable surfaces, are removed and conveyed into the circulating blood, and carried off by the kidneys and other organs of secretion.

Some anatomists seem unwilling to assume a perfect knowledge of the use of the air inspired by the lungs: it is known to be instrumental in speech, and to convey smells. When the left ventricle has thrown the blood to the remote parts of the body, and it has returned through the veins to the right auricle of the heart, the right ventricle receives it, and throws it through the pulmonary artery into the lungs; here the air seems as a vehicle to carry off the noxious steam; and, from the principle of fire it may be fraught with, it perhaps refreshes and helps to renew the vivifying quality of the crimson stream;

before, returning by the pulmonary veins through the left auricle of the heart, the left ventricle sends it on the same kindly errand it has already run through the body.

In the lungs the blood comes within the thousandth part of an inch of actual contact with the air taken in by breathing; and it has been shewn that the thin membrane between them, like a sieve, admits the air to the blood, and, in fact, does not prevent the action of one on the other. This approximation must surely be of considerable importance in the animal economy, since all the blood in the body, by an astonishingly rapid circulation, is continually exposed to the action of the air in the lungs; and the pulmonary artery, which conveys the blood into them, is as large as the aorta which carries the blood to all other parts of the body. It has also been demonstrated, that the red colour of the blood depends on its exposure to air, the arterial blood being much more florid than that which is on its return from the different parts of the body. But it is not all kinds of air which are proper for respiration, but only one particular kind that will support animal life; and this constitutes about one third or one fourth of our atmosphere, and is called by modern chemists oxygene or pure air. It has been ascertained, that of this pure air taken in by inspiration scarce any is returned by expiration, but it is absorbed by the blood, and thus yields a sort of pabulum to the body. The matter of fire contained in it, in a latent state, gets loose as the air passes from the gaseous to the concrete state, in being absorbed by the blood, and thus helps to constitute or keep up the animal heat; for the heat of the body seems also to depend much on the supply of aliment to the stomach.

89. *The Will, Brain, Nerves, &c.*] Hitherto we have considered the animal functions as they are passively carried on; but animals have also voluntary motion. In surveying them in this point of view, new wonders arise, and still more incomprehensible; we may have a remote idea of the circulation of the fluids in a uniform way; we may observe the swelling of the tide, the courses of the heavenly bodies, the growing of plants, the motion of the winds, and of other inanimate bodies; we may say it is all natural, and think we comprehend it; but when we come to contemplate voluntary action, the sage and the child seem at once on a level; alike unable to comprehend the powers they enjoy, and alike capable of employing them to their likings.

Anatomists, in describing the body as an animated machine, inform us, that from the brain, which they imagine to be the seat of the understanding, arise certain branches, which they suppose to be fasciculi, or bundles of extremely fine tubes, so minute, indeed, that their cavities cannot be discovered; these they call nerves; they tell us, that they are the instruments of sensation, and distributed throughout the whole frame; that whatever we feel is only experienced by these conveying the sensations to the brain; but how this is done is matter of dispute. Some suppose, that however objects affect us, whether they come in contact with the hand or any other part of the body; whether their rays fall upon the retina of the eye, which is an expansion, of the optic nerves, or their effluvia enter the nose, and strike on the olfactory ones; whether sounds be in the ear, or tastes in the mouth,

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the nerves receive the impression, and vibrate it to the brain. Others object that they are slack, moist, and surrounded with soft parts, and are therefore unfit for vibrations. According to their conjectures, the brain is a gland secreting from the blood an invisibly fine fluid, called the animal spirits, or nervous fluid; this flows continually through the nerves, and is transmitted into all the parts of the frame. To all these processes in our nice elaboratory the infant owes its growth, and the man of years his continuance: were our hands of steel, or our bones of adamant, they would soon be worn out; but fitted to receive the nutrimental fluids, they mock the violence of labour, and only gather strength from the duties imposed on them; by these the fingers are guarded with nails, and by these the jaws are furnished with teeth. The fluid, which flows with unequable motion through the nerves, is affected in its motions by every object that strikes upon these; and, as to stop the end of a tube is to stop the motion of the whole contained fluid, so the extremity of the nerve being affected, the animal spirits stop at once, and faithfully give to the brain or sensorium the varied impressions of pleasure and pain. It is when the mind willeth that these animal spirits, rushing into the muscles, contract them, and thus put the body into action: but here the man of science must hold, and here his conjectures seem to have an end.

If artificial machines, by casual supplies of oil, be made to run glibly, the animal frame, in this respect, seems to have peculiar advantages; the joints are tipped with cartilage, and furnished with a mucilaginous matter, called sinovia; their motions are so fine, we seem not to have the least feeling of their movements; and the whole machine seems to be amply supplied with lubricating fluids. It is remarkable, that though our joints are so free from friction, yet whether we sit or stand, or in whatever position we be, the body seems fixed and firm, without effort. It seems the bones are stayed by the muscles, as the yards in a ship are kept steady by the braces; if, in this the starboard braces be let go, the larboard ones prevail; if in the body a muscle becomes paralytic, its antagonist one contracts and distorts the part. It seems the general idea, that all our motions are performed by contractions of the muscles, that these are produced by an influx of fluids into their parts; and respecting how this brings about the effect, various have been the opinions. Perhaps, if we can content ourselves to derive information from an homely example, in the instance of a cord fixed at the ends, growing tight when wet with rain, and hanging loose in dry weather, we may see the manner of animal exertions: perhaps the parts of the muscle are more closely attracted to each other by the influx of the fluid; and this may bring about the necessary contraction.

The finest visible nerves, under the most powerful microscope, appear to be only bundles of still finer ones; so that the smallest yet discovered, have been computed to be 30,000 times finer than a hair.

Some have thought that the nerves, being so exceedingly fine, are not likely to be tubes conveying liquors. They assert, that all the so-

lids of the body are formed from the blood; and from that part of it called the coagulable lymph.

90. *Various Definitions, Observations, &c.*] The bones sustain the other parts of the body; they serve as levers for the muscles to act upon, and defend those parts from external injuries that are of the greatest consequence to be preserved; as the brain, spinal marrow, heart, &c. Every cylindrical bone contains a marrow for the purpose of softening it, and rendering it less brittle: in young tender bones the marrow is bloody, lest being too oily it should soften them too much; by their being hollow they are lighter, yet their diameters being kept large, they are less liable to be broke: which mechanism being yet more convenient for birds, the bones of their wings, and for the same reason their quills, have very large cavities; while the legs of other animals, and particularly of man, have their bones more solid for supporting of weight. Some insects and fishes have shells instead of bones, which serve them also for defence; their muscles being inserted into these at a distance from the centre of motion of each joint, their motions are slow, strong, and simple: therefore, in this sort of animal, quickness of motion, where it is wanted, is procured by a number of joints, as may be seen in the legs of a flea; and variety of motion, by joints with different directions, as may be observed in a lobster.

Muscles are distinct portions of flesh, which by contracting, perform the motions of the body. Tendons are the same fibres, more closely connected, that they may possess less space in a limb, and be inserted in less room into a bone. We may consider the fibres of the muscles comparatively loose as flax on a spinning-wheel; and the tendons small, but strong, like the thread taking the spindle.

Ligaments are strong inelastic substances, for holding together such bones as have motion; and in some instances, as at the wrist and instep, they bind down the tendons of muscles, to increase their strength of action.

Cartilage, commonly called gristle, is a compact, elastic substance, almost insensible: with this the extremities of bones are covered when intended to move upon each other, as in all the joints of the body; this having a finely polished surface, lubricated with sinovia, renders us insensible of friction, or rather prevents it; and by its elasticity prevents the injuries which would otherwise be inflicted on the joints on many occasions, as jumping, &c. The ribs are also connected to the breast-bone by cartilage, to give greater elasticity and capability of contraction and dilatation; it is likewise principally concerned in the formation of the external part of the ear, being, from its elasticity, more favourable for vibration and the conveyance of sounds. We also derive an advantage from the most prominent part of the nose being cartilaginous; were it constructed of bone, it would be subject to fracture from its exposure; and if of a more yielding texture, the nostrils would not be so favourably dilated for the receiving of effluvia, but would collapse, or close, when we attempted to draw in the breath through those avenues.

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Membranes are most delicately constructed parts of the animal machine; they form the most smooth and advantageous linings to the several cavities of the body: the brain is included in a membrane which lines the cavity of the skull; the chest is also lined with a membrane called pleura; the abdomen is in like manner lined with a similar one, called peritoneum; the stomach and intestines are also composed of several distinct membranes, connected by vessels, nerves, and fine filaments, or fibres. The true skin is connected to the body of every animal by what is called the cellular membrane, from its being composed of innumerable cells, or minute cavities, everywhere communicating with each other, so that air or other fluids, being forced between the skin and muscular parts, it readily diffuses over the whole animal. Cellular membrane is so generally dispersed throughout the animal structure, that, like the cellular tissue in plants, it seems to be the general connecting medium. By this the expanded membranes are connected to the parts they line, the coats of vessels are connected to each other, and even the fibres of muscles are united by the medium of cellular membranes. The skin of the human body is everywhere covered with a fine but insensible membrane, called cuticle; between this and the thick skin, called cutis, is spread a tender substance, which, from the slightness of its texture, scarcely can be deemed a membrane, called *rhetum mucosum*; upon this depend the various complexions of different persons: both the cutis and cuticle are the same in all; but it is the *rhetum mucosum* which distinguishes the colour of the European, the Indian, and the African.

91. *Comparison of Brutes and Man.*] Of all the tribes of sublunary creation, quadrupeds seem to make the nearest approaches to man in their structure and in their sagacities. Of these, some of the monkey kind bear so near a likeness to him in their fabric, that anatomists have discovered very little difference in their internal conformation. Of the ouran outang, dissected, and thus compared with man, it has been said, especially the tongue, and all the organs of the voice were the same, yet the animal was dumb; the brain was formed in the same manner with that of man, yet the creature wanted reason; an evident proof that no disposition of matter will give mind: and that the body, how nicely soever formed, is formed in vain when there is not infused a soul to direct its operations. These imitative animals, from copying the manners of man, and being so like him in their figure, have in his eyes a wonderful air of sagacity, which seems to give them a pre-eminence over the other parts of the brute creation; but they are perhaps equalled, or even exceeded in invention, docility, and attachment, by animals that seem of a far less perfect figure. If monkeys, in making their depredations on the corn, or the orchards of the husbandmen, plant centinels to give the alarm in case of danger, this policy is observed generally by the other gregarious quadrupeds in a state of nature, and even by the birds, who might many of them teach the ape a lesson of art in the nice construction of their nests; and if he do attempt, as some say, a sort of hut, the awkward-looking beaver seems very much to exceed him. Indeed the natives of those countries where this little animal exerts its ingenuity, from

their leading a roving life, seem scarcely to have leisure to display on their wigwams an architecture equal to that which the beavers bestow on their huts.

The associating together for repelling a powerful invader, is also common to the other gregarious animals as well as to apes: even the sheep, in a state of nature, unite together for the common defence, the ewes falling into the centre, the rams taking the post of danger, bravely defending them by help of their horns. Both the hind and fore limbs of animals of the monkey kind, are furnished with a sort of hands peculiarly adapted for the purposes of climbing. Though in this exercise they are often seen upright in their woods, we are told, that they naturally run there upon all fours, and hence their palms and soles are equally beaten and callous; that when they are taken, their hands are tied behind them, to teach them to walk upright; that they learn this attitude after some time; and thus instructed, are sent to Europe to astonish the speculative with their near approaches to humanity, while it is never considered how much is natural, and how much has been acquired in the savage schools of Benin and Angola.

This animal, so expert in imitation, seems exceeded in wisdom by the unwieldy elephant; and must, in attachment and personal courage, yield with all other brutes, to the dog, that faithful and constant companion of man, which rejoices in finding out and obeying the will of its master.

91. *General Analyses, Observations, &c.*] The innumerable and various tribes of living creatures which inhabit our globe are, aerial, man, the birds of the air, and the beasts of the field; aquatic, fishes; and amphibious, those animals which live both in the air and water, as serpents, frogs, lizards, tortoises, &c. Insects and worms may be considered as an inferior sort of beings, creatures to be found in every habitable part of the creation: and some of them in their changes belong successively to the waters, the earth, and the air. Myriads of minute creatures of this description, invisible to us, are found to inhabit places we might suppose destitute of life: where putrefaction prevails, these creatures have their residence; they swarm in the air, and a variety of fluids; they inhabit the green leaf, the nodies of living animals, and indeed almost every other substance that is not of adamantine hardness, or poisonous quality. We hardly account their bodies as the flesh of beasts, of fishes, or of birds; they are without bones and blood; and have only a white serous fluid circulating through them in place of blood.

From our being accustomed from our childhood to behold living creatures moving in the waters, we get reconciled to the sight, and hardly wonder how they exist without suffocation. Were we to judge of animal life, however, merely from the feelings we have of our own existence, we should foolishly pity them as oppressed by the dense fluid wherein they reside, and ignorantly account their situation unnatural: a slight knowledge of anatomy, however, shews us that the reverse is the case,

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We have already seen in the circulation of the blood in the human frame, how the left ventricle of the heart throws it through the arteries to the remote parts of the body ; how the veins take it up, and return it to the right ventricle ; how this throws the crimson stream reeking to the lungs, there to be fanned by the inspired air, before it be again returned to the left ventricle. The hearts of other animals that live in the air, and that have red blood in their bodies, as beasts and birds, are also formed with two ventricles, and their blood is in like manner hot. The heart of fishes and amphibia has but one ventricle, and their blood is cold ; it therefore does not need to come in contact with the air, and it only runs what the anatomists call the short circulation. Thus we see in the very different elements, the air and waters, how their inhabitants are naturally fitted for their respective habitations.

Naturalists, in contemplating and describing the innumerable tribe of animals, have grouped them together in a variety of ways ; they have classed them according to their places of habitation and ways of life, their outward forms and internal structure, their teeth or bills, their legs, wings, or fins, their manner of moving, &c. but whatever divisions they may have made in the immense variety, and however obvious their distinctions may at first seem to be, the gradations between animals of the most opposite kinds are so minute and imperceptible, that, in attempting to draw the animated picture, many creatures present themselves of so equivocal a kind, it seems hard to determine whether they are insects, birds, or quadrupeds, fishes or beasts : thus some of the smaller tribes of fishes, as well as beasts, rise from their humble stations, take wing and flutter through the air, as the flying-fish and bat ; while some fishes appear but like insects or worms, as shell-fishes and polypi ; those of the cetaceous kind, from the whale to the porpoise, have, like quadrupeds, cylindric bones, with marrow in them ; like them, bring forth alive, and suckle their young ; have their hearts similarly formed ; must frequently come to the top of the water to breathe ; and would actually drown, if kept long under water. Hence some account these animals rather beasts than fishes ; and indeed the gradations between beasts and these kinds of animals, are so minute and indistinct, that naturalists are at a loss where to draw the line betwixt them : thus in descending from the beasts of the field to the inhabitants of the waters, they are first web-footed, as the otter ; they are partly covered with scales, as the beaver ; their limbs are inclosed in their bodies, the extremities only appearing in shape like fins, as the seal or the morse ; they live upon shore as well as in the water ; and, in fine, they are without fore feet, as the manati ; or are only furnished with fins, as the whale, and never come ashore. To account for the continuance of these animals under water, seems attended with more difficulty than that of the true amphibia. Some have supposed, that during the time they remain under water, the blood accumulates in the arteries, which dilate to receive it ; and that by this means the circulation for a while keeps going on. There is another way of accounting for it, which, in many cases, appears to be evidently the cause : Between the ventricles of the heart

heart there is originally an aperture, called the foramen ovale through which the blood is found to make the short circulation, while the animal as yet continues in the womb; on the birth of the animal, when it begins to breathe, the foramen closes up, and the blood is thrown to the lungs, as already described. In some, however, as seals, the foramen is found open, and thus they are fitted for remaining long under water, by the blood circulating immediately through the heart without being thrown to the lungs. Some birds also lead an amphibious sort of life; as gulls, cormorants, ducks, geese, swans, &c. They, like the quadrupeds just mentioned, are web-footed for rowing in the water, and, like them, overtake their fishy prey in their own element.

It is lamentably true, that in some parts of the world, even man is reduced to the miserable necessity of becoming an amphibious sort of animal. Perhaps the gay and gaudy fair, glittering in their pearls, little consider the pain it costs some of their wretched fellow-creatures to procure the little bauble. The shining little gem is found in the shell, and sometimes within the body of a large kind of oyster. Some have imagined it proceeds from a disease in the fish. This concrete substance is found to be of the same kind with the inside of the shell which incloses it, and which is therefore called mother of pearl. There are pearl fisheries in America, but those of Asia are more celebrated: and of these the chief is carried on in the Persian Gulph. The wretched people that are destined to fish for pearls, are either negroes, or some of the poorest natives of Persia. They dive to the depth of fifteen fathoms, and continue at the bottom an amazing length of time. Some, as we are assured, have been known to continue three quarters of an hour under water without breathing; and to one unused to diving, a few minutes would suffocate the strongest. Whether, from some effort, the blood bursts the old passage which it had in the fœtus, and circulates without going through the lungs, it is not easy to tell; but certain it is, that some bodies have been dissected with this canal of communication open; and these extraordinary divers may be internally formed in that manner. If we consider these wretched people in the midst of their business, or experiencing the effects of their unnatural employ, we can, perhaps, hardly conceive a way of life more calamitous. Furnished with no other covering than a pair of gloves to defend his hands, while he picks the oysters from the holes in the rocks, and a net hanging down from his neck to hold what he takes, the diver plunges to the bottom by help of a stone. Besides tempests and other dangers he has been exposed to, he here becomes subject to suffocation; staring monsters also, of enormous size, affright him in this wretched situation; and it is often in vain that he labours to conceal himself from their view, by stirring up mud at the bottom; he falls a victim to their voracity, and is delivered from his wretchedness. These divers universally labour under a spitting of blood; the most robust and healthy young men are chosen for this employment, but they seldom survive it above five or six years; their fibres become rigid; their eye-balls turned red; and they usually die consumptive. While, from the construction

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struction of the heart and lungs in land-animals, and even in some of the fishes, we at once see the air absolutely necessary for their existence, we are not to imagine that the amphibia, nor even the fishes, which constantly keep under water, can live without air, though some of them are without any lungs at all. Those who have seen a fish in the water, must remember the motion of its lips and its gills; this without doubt is analogous to our breathing.

Having considered the fitness of the several kinds of animals, from their internal structure, for their respective elements, we may now observe their aptitude in other respects to their various manner of life.

93. *Quadrupeds.*] And first of quadrupeds; their heads, though differing from each other, are in general adapted to their way of living. In some it is sharp, the better to fit the animal for turning up the earth, in which its food lies, or where it finds security. In some it is long, in order to give a greater room for the olfactory nerves, as in dogs, who are to hunt and find out their prey by the scent. In others it is short and thick, as in the lion, to increase the strength of the jaw, and to fit it the better for combat. In those that feed upon grasse, they are enabled to hold down their heads to the ground, by a strong tendinous ligament, that runs from the head to the middle of the back. The teeth of animals are entirely fitted to the nature of their food. The teeth in graminivorous animals are edged before, and fitted for cutting their vegetable food. In the carnivorous kinds they are pointed, and fitted for holding or tearing. The stomach is generally proportioned to the quality of the animal's food, or the ease with which it is obtained. In those that live upon flesh, and such nourishing substances, it is small and glandular. In those that live entirely upon vegetables, it is very large; and those who chew the cud, have no less than four stomachs, all which serve as so many laboratories, to prepare and turn their coarse food into proper nourishment. In Africa, where the plants afford greater nourishment than in our temperate climates, several animals that with us have four stomachs, have there but two.

Their legs are equally fitted to their wants or enjoyments. In some they are made for strength only, and to support a vast unwieldy frame without flexibility, or beautiful symmetry. Thus the legs of the elephant, the rhinoceros, and the hipopotamus, or river-horse, resemble pillars. Deer, hares, and other creatures that are to find safety only in flight, have their legs made entirely for speed; they are slender and nervous.

Their feet are also formed to suit their manner of life. They are furnished with fingers for holding, with claws for tearing, with membranes, or webs, for swimming, or with hoofs for traversing extensive tracks of rugged country. The porcupine and hedge-hog, covered with sharp quills, or prickles, and the armadillo with scales, find security in coiling themselves up, and present these to the attacks of their enemies.

Their covering seems also adapted to their wants, or situations. The fox and the wolf, which in temperate climates have but short hair,

hair, have a fine long fur in the frozen regions near the pole. On the contrary, those dogs which with us have long hair, when carried to Guinea or Angola, in a short time cast their thick covering, and assume a lighter dress, and one more adapted to the warmth of the country. The beaver and the ermine, which are found in the greatest plenty in the cold regions, are remarkable for the warmth and delicacy of their furs; while the elephant and the rhinoceros, that are natives of the Line, have scarce any hair at all.

94. *Birds.*] Birds, next to quadrupeds, seem to demand our attention; and these appear equally adapted to their situations. Formed generally for a life of swiftness through the air, in place of fore feet, they are furnished with expansive wings, which stretching out as they strike downwards, and contracting as they raise them in their flight, they are thus enabled to support themselves in an element that is so much lighter than themselves. Their bodies are sharp before, for cleaving the air; their legs are light and slender, and, with their tails spread out, they steer themselves as with an helm. As these beautiful creatures have to traverse the regions of air, and regard objects afar off, their sight is keen and piercing, their hearing quick, and their voices loud beyond that of other animals. Like quadrupeds, also, their different tribes are fitted for their particular stations and ways of life. The rapacious kinds, booted to the toes, are furnished with strong hooked claws and beaks, notched at the end, for holding and tearing; the crane kinds, with naked and scaly legs for wading in the water, and ducks, with short ones, and webbed feet, for paddling or rowing; their oily feathers throw off the waters from their bodies; and their bills are nervous at the point, that they may feel their food in the mud or water. Some, as the ostrich, destined to keep on the ground, have strong, muscular legs, and are furnished with short little wings, to help them in running. This largest of all birds, is said to be rode on like a horse, and vastly to exceed it in swiftness. Their stomachs are peculiarly formed to the quality of their food. In the rapacious kinds, the œsophagus, or gullet, is found replete with glandulous bodies, which serve to dilute and macerate the food as it passes into the stomach, which is always very large in proportion to the size of the bird, and generally wrapped round with fat, in order to increase its warmth and powers of digestion. In granivorous birds, the gullet dilates just above the breast-bone, and forms a pouch, or bag, called the crop. This is replete with salivary glands, which serve to moisten and soften the grain, and other food, which it contains. After the dry food of the bird has been macerated for a convenient time, it then passes into the belly, where, instead of a soft, moist stomach, as in the rapacious kinds, it is ground between two pair of muscles, commonly called the gizzard, covered on the inside with a stony, ridgy coat, and almost cartilaginous.

95. *Amphibia.*] The animals which compose the true amphibia are but few: a short description of each kind may therefore here be attempted.

Tortoises chiefly live upon vegetables; but are also thought to eat insects, snails, &c. These harmless creatures, drawing in their heads

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beneath the shell, which covers them like a pent-house, find in it an asylum against the attacks of their rapacious enemies; they are divided into two classes, the land-tortoise and sea-turtle, from the places where they are chiefly found: their limbs also corresponding to their respective stations, in one being clawed for walking on the land, in the other forming a strong kind of paddles, for urging their way in the deep; both however are found to be amphibious.

Frogs and toads, while in their tadpole state, live upon the weed their pool supplies; when grown to maturity, their food is insects and worms, for which they leave their native element, and come upon land; there they lurk beneath the cool canopy of an herb, and waiting for their prey, till it come within their reach, with the most unerring aim, dart out their long and forked tongue, which is covered with a glutinous substance; to this the little animal adheres, and is thus drawn into the jaws of its devourer. It is entertaining to observe how differently frogs are regarded in this and the neighbouring island. In Ireland, where there are neither toads nor venomous creatures, girls at their hay-making will take them up, and play with or stroke them as they would little birds; but in England, many turn from them with aversion, and generally they are cautious in handling them for fear of meeting with the toad through mistake. The agility of the frog however, and its bright and polished skin, might obviously distinguish it from the dark and crawling toad, were there real danger in meeting with the latter; but the toad is found to be harmless and inoffensive, sometimes taking up its residence near the habitations of man, and, if encouraged to it, even venturing into his dwelling, to be fed at his hand. The frog is remarkable for changing with the weather, its colour becoming dull when the atmosphere is dry, and it wants the grateful humidity which moistens its skin, and renders it alert and active. It has been kept and fed, to answer the purpose of a weather-glass, being heard to croak at the approach of wet weather, but mute as a fish when it threatened a continuance of fair. But of all the wonders related in natural history, that of the toad's being found alive and healthy in the heart of trees and solid rocks, without the smallest opening from its cell, seems the most astonishing; there it has been supposed to have had a torpid sort of existence for ages: but how the egg or spawn which produced it, first found admittance, is not easily accounted for. Into the stone we must suppose it found its entrance while the substance was yet soft and unpetrified; but how shall we account for its finding its way into a tree? Cabinet-makers remark, of so close a wood as mahogany, which grows in sandy soils, that the sand which has got into the substance of the wood, soon dulls the edge of their plane irons; and if this be embraced by the fibres of the root of the tree and ascend with it in its growth, may not the minute and embryo toad find a similar admittance?—All the stories concerning the frog or toad's living inclosed in wood or stone, are of doubtful veracity.

Of the lizard kind, the animals are various: in this class we find crocodiles, dragons, salamanders, and cameleons, creatures whose real history may afford entertainment to the contemplative; but to this, romance has added much of the marvellous. Those who have seen the little four-footed evet, newt, or arglogher in our ditches, with its
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body terminating in a tail, may from it form a pretty just conception of the figure of these animals, from the alligator of the river Amazons, of twenty-seven feet, to the small cameleon but one inch long. The cameleon is sometimes eleven inches long. It has been said to feed upon the air; from this it seems to receive great refreshment; it is sometimes seen, as it were, blown up for two hours together, and then it continues diminishing less and less insensibly, till it appears quite lean and emaciated; but the air only gets between the muscles and the skin; for the muscles themselves are never swollen: it is hardly ever observed to eat any thing, except now and then a fly, which it takes half an hour to swallow. Like the frog, it takes the flies with its tongue, which is as long as its whole body. As this animal's skin suffers such changes, from its being puffed up, or only contracted, we need not so much wonder, when we are informed, that though naturally of a grey colour, it exhibits, when placed in the sun, a greater variety of colours than are seen in silks of the most variegated colouring. It is perhaps the most extraordinary part of this animal's history, that it can move one eye singly, or turn them both in different directions, thereby looking two ways at once. The lesser lizards appear generally to be harmless, playful, little animals, though, like the toad, they are accounted venomous. Of this class of creatures is the flying dragon; its wings are very thin, resembling those of a flying fish; and about its neck are a sort of wattles, not unlike those of a cock. This harmless little creature, which lives chiefly upon insects, and even seems to embellish the forest with its beauty, we can hardly suppose that it ever gave birth to the fiery dragon of romance: this death-dealing creature seems rather to have taken its rise from the ravages of serpents. Salamanders appear less active and beautiful than the lizards of the cameleon kind, but equally harmless; with appetites and manners nearly the same, though fear has charged them with deadly venom; and imagination has even given them an habitation in the fire, a place they can endure no better than a fish.

The iguana is a lizard about five feet long, and the body about as thick as one's thigh; the skin is covered with scales like a serpent, the back furnished with a row of prickles, that stand up like the teeth of a saw, and the jaws are full of very sharp teeth. This animal, though apparently formed for combat, is a harmless creature, sporting in the water, or living among trees, feeding upon the flowers of the mabot and the leaves of the mapon, that grow along the banks of the stream, and reposing upon the branches of the trees that hang over the water. Its flesh may be considered as the greatest delicacy of Africa and America; and the sportsmen of those climates easily take it by help of a noose and a stick. The scaly lizards are of various sizes, from the iguana to the formidable crocodile, that unpeoples countries, and makes the most navigable rivers desert and dangerous.

But of all the animals that frequent the waters, or inhabit the forests, serpents seem most to represent the audacity of man, and to restrain his vagrant excursions. Against the force or rapacity of other dreadful creatures, arts and arms have been opposed with success. The monsters of the deep have been drawn from their watery element, and

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their spoils converted to many useful purposes in life. Lions and tigers, with all their ferocity; the elephant and rhinoceros, encompassed with strength; and even the crocodile, with all its terrors, have been taught to submit to the rein, to swell the pomp of monarchs, or rage among the tumults of mankind; but serpents, furnished at once with the most dreadful weapons of annoyance, and the most elusive means of escape, seem in all ages to have baffled the prowess of the lords of the earth. It is the most striking character in the natural history of Ireland, that it does not give birth to these venomous creatures. Superstition has ascribed this to the prayers of the missionary Patrick; but as Ireland produces poisonous herbs as well as nutritive and medicinal, perhaps there only wants an importation of serpents, to shew that that island is as liberal in the supplies of life as other countries are. The frog was designedly brought into Ireland, and soon multiplied to an amazing degree; and if, by accident or design, vipers were introduced, the people might soon have to be as cautious in passing through a wood, or lolling on a bank, as other European nations.

The serpents of Europe, however, are few, feeble, and diminutive, compared with those of the other quarters of the globe. In the warm countries that lie within the tropics, where the climate supplies warmth and humidity, these creatures grow to an enormous size, and multiply in astonishing abundance. All along the swampy banks of the Niger and Oronooko, they are seen twining round the trunks of trees, and carrying on an unceasing war against all other animals in their vicinity. Against one of these dreadful monsters, grown through successive ages to one hundred, or one hundred and fifty feet long, the lion, or the tiger, and even the elephant himself, would seem but feeble opponents. We need not, therefore, so much wonder at the accounts of the antients, of a whole nation sometimes shrinking from the ravages of a single serpent, when as yet they had not learned to combine their efforts together in opposing it. Even in more improved antiquity, we are told that while Regulus led his army along the banks of the river Bagrada, in Africa, an enormous serpent disputed his passage over, and destroyed many of the army; and was not subdued till the battering engines were brought out against it. These assailing it at a distance, it was soon destroyed. Its spoils were carried to Rome, and the General had an ovation decreed for his success. We are assured that it was one hundred and twenty feet long, by Pliny, who says, he himself saw the skin, which was kept in the capitol. And we have recent accounts from travellers, that there are serpents at this day, which, in spite of all opposition, combat with and destroy the tiger and the buffalo. In this dreadful engagement, their teeth are but of little use; it is by the strong verberation of the tail, by twining its body round that of its antagonist, and drawing the knot with convulsive energy, the enormous reptile breaks every bone in the quadruped's body, and then at one morsel devours its prey. In fact, the largest kind of serpents are none of them venomous; and many of the small kind are harmless and inoffensive. In Africa, they are received under the protection of the natives, and are
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seen in their houses clinging to the roofs, unmolesting and undisturbed. In some parts they are idolized as the tutelar deities of the country, and have their temples, their priests, and their sacrifices. In Asia, these beautifully coloured animals meet with equal kindness; and even in Italy the Esculapian serpent, which is one of this kind, is considered as a useful domestic for destroying the mice: there it is suffered to crawl about the chambers, and sometimes it even creeps into bed to the people.

The venomous snakes are distinguishable from the other, by two large teeth or fangs, that hang out beyond the lower jaw; they grow one on each side, and sometimes two, from two moveable bones in the upper jaw: by sliding these bones backward or forward, they have a power of erecting or depressing the fangs at pleasure. The glands, that prepare the venomous fluid, are situated on each side of the head, behind the eyes, and have their canals leading from thence to the bottom of the fangs in the upper jaw, where they empty into a kind of bladder; the fangs are hollow within, and have an opening towards the point, like the slit of a pen, through which, when the provoked animal erects these dreadful weapons, strikes them into its enemy, and thus pressing them down upon the bladder, the venom makes its way into the wound. It is remarkable that a small drop of this venom, thus inflicted, shall contaminate the whole frame, if a cure be not administered: yet a quantity of it may be taken inwardly without any harm; but in fact, to introduce any fluid into the circulation of the blood that has not been prepared in the elaboratory of the stomach, and secreted by the lacteal veins, is enough to destroy the body. Even milk, that seems the most mild and nourishing of all fluids, if it be injected into a vein, will quickly become fatal, and kill with more certain destruction than the venom of a viper. Serpents have a most wonderful capacity of swallowing creatures of greater thickness than themselves; their jaws are held together at the roots by a stretching muscular skin; by which means they can open them extremely wide; the throat, like stretching leather, dilates to admit the morsel; the stomach receives it in part; and the rest remains in the gullet, till putrefaction and the juices of the serpent's body unite to dissolve it. After thus gorging itself, the animal becomes quite heavy and torpid; the naked Indian then ventures to assail it, and destroys it at his pleasure. These animals, though thus voracious, are capable of enduring the longest abstinence.

From the long and slender form of the serpent, we might be induced to imagine, the motions and structure in it and the earth-worm, were similar to each other; in these, however, they are very different. The serpent has a great number of ribs, and a back-bone with numerous joints, which it cannot shorten or lengthen, though it has a power of bending it in every direction. This animal, therefore, in its progression, must bend its body, and throw itself forward by its spring. The earth-worm, on the other hand, has no back-bone, but a number of rings, or a spiral muscle, that runs round its whole body from head to tail; it therefore can lengthen or contract itself; can stretch out the slimy fore-part of the body; with this, stick to the ground; and then, by

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by contracting itself, bring up the rear. The amphibia are remarkable for frequently casting their skins, and are found to be extremely tenacious of life.

96. *Fishes.*] Fishes are a class of creatures that appear, both in structure and sagacity, quite inferior to other animals: though capable of enduring famine an amazing length of time, they appear most voracious creatures: a ceaseless desire for food seems the ruling impulse of their actions; and their life one continued scene of violence or evasion.

Fishes are formed for making their way through the water in a manner somewhat similar to birds for cleaving the air. In place of wings they have fins; they are also furnished with a spreading tail. This last seems to give the grand impetus in their motions; and to this the fins seem subservient in steering the animal. We have seen among the amphibia, a kind of animals furnished with venom, without being themselves destroyed thereby. Among fishes, the torpedo, and some others of the ray kind, afford something still more wonderful in their history. These animals have the power of striking the person who handles them with numbness: if he even but touch them with the end of his stick, he feels the shock; which, from its effects, and from this circumstance, appears to be electrical; but how the animal prepares the charge, and how it keeps it from discharging in the dense fluid it resides in, seems quite unaccountable.

Fishes and amphibia are produced from spawn, from eggs, or are brought forth alive.

It is remarkable of many tribes of the brute creation, especially of the lower orders, that at certain seasons, especially on the approach of winter, when they are debarred from food by the severity of the weather, they seek themselves retreats, and go to sleep; where they continue in a torpid state, apparently dead, till the coming of warm weather, which again calls them to enjoy a more active enlarged life, and to feed on the banquet the season sets before them. In this way fishes are said to be bound up by the frost in the northern rivers of the world, till the return of the sun thaws their prison, and restores them to their former liberty. We may perhaps conclude, however, that they are rather lying dormant in the water under the ice, than frozen up in it; so great an excess of cold should seem too intense for any description of animal life to endure.

97. *Insects and Worms.*] Insects, and animals of the worm kind, seem to form the lowest order among the various tribes of living creatures which inhabit our globe. Of this description we may reckon all those which have not red blood circulating through their bodies, whether it be the kraken of the Norway seas (but it is doubtful whether any such animal as the kraken actually exists) a mile and a half in circumference, raising itself in the water, its antennæ or arms, at first appearing like a number of small islands, and then like a forest of prodigious large trees; or the animalculæ, which, from its minuteness, escapes our sight, and which in slaking our thirst, we may swallow by thousands; whether it be the snail or the lobster, the flea or the scorpion, the worm or the fly.

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Whatever has been related of the voracity of the amphibia, their tenacity of life, or their frequently casting their skin, seems peculiarly to hold in the lower class of animals. Among these, the tearing away of a limb appears to be but a small calamity: the lobster, the crab, the spider, and others, frequently, in their combats, meet with losses of this kind; but they soon grow again. This seems extraordinary; but what shall we say of those that seem to multiply even by destruction?

The earth-worm, when cut in two, is seen to become two distinct creatures; from the head end, a tail is soon found to issue; and from the tail part, by slower degrees, a new head proceeds: but animals of the polypus kind, seem to offer, in their history, something still more astonishing: these creatures, which appear like vegetable substances floating on the water, are found to be real living animals hunting their prey. The body of this animal appears like a bag, surrounded at the mouth with a number of antennæ, or arms, with which, as feelers, it finds and draws in its prey; these it can contract or lengthen at pleasure; and indeed its whole body seems capable of the same dilatation or contraction; so that its form is scarcely fixed or certain, but changes in size and figure according to its motions, or the variations of heat and cold. On their bodies are discovered a number of wart-like protuberances, which are found to be themselves young polypi, feeding and fishing for themselves, while they, at the same time, derive nutriment from the parent; these, every now and then, drop off to make way for others, and to become themselves the heads of similar colonies, which even begin to bud before the separation from the parent in maturity. Some may wonder at the magnitude of the elephant, and others be astonished at the smallness of the animalcule; but of all the animals that are found in the creation, the polypus seems most a prodigy to the philosopher: it has been twisted and twined, and turned inside out; it has been cut to pieces, both lengthways and crossways, still it was found to retain its vivacious principle, each part becoming an animal of itself, and, like its original, the parent of a colony.

As these animals seem the most imperfect in their formation, so they offer a wonderful variety in their size and their shapes. The kraken is said to be an enormous polypus; and sponges, with the strange variety of coralline substances which appear like plants in the sea, and in some parts obstruct navigation by their growth, are all accounted the fabrications and cells of minute creatures of the polypi kind. To understand how they are capable of rearing such works, and indeed, how all shelled animals are furnished with their covering, it is necessary to observe, that their bodies are supplied with a slimy matter, which as it ouzes out, and sometimes, perhaps, joins with extraneous substances, acquires the coralline consistency, the toughness of sponge, or the hardness of shell. In this way the lobster obtains its casing; and in this way the snail is observed, as it grows bigger and bigger, to add layer to layer to the mouth of its shell, until it has obtained its largest evolution.

Among the amphibia, we have seen serpents furnished with venom;
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among insects there are creatures furnished with similar weapons; the scorpion has been noted from antiquity for its venom; and the spider, however harmless it may appear to us, is furnished with a poison under its claws, sufficiently destructive to the minute creatures it preys upon; but of all the spiders we have ever heard of, the most extraordinary things have been related of the tarantula. This animal is about three quarters of an inch long, and, in the fields of Italy, sometimes bites the peasants as they are mowing down the grass; a slight inflammation ensues, as from any other puncture, which heals without danger. They affect, however, to feel on this occasion, a variety of extraordinary symptoms and passions, only to be removed by the powers of music. This deception has long been imposed upon the rest of Europe, but is now well known to be all a collusion. The credulous traveller however, who wishes, when from home, to see all that is marvellous, may at this day, for a trifle, be entertained with the extraordinary farce: the actors produce this famed little insect, and one of them suffers himself to be bit: he alternately appears to be convulsed with laughter, and depressed with melancholy; the fiddler then administers the never-failing tune: he begins his air easy and slow, and rises and quickens by degrees, till at last he sees his dramatic patient dancing on the floor; and thus concludes the unbecoming farce.

Many are the volumes that have been written on the history of insects; and some have been so much enamoured with the subject, as to pursue it with a diligence equal to that of the bee or the ant they contemplated. They have minutely examined the formation of these little creatures at the several periods of their existence; they have observed them as worms breaking from the egg, or the body of the parent; as crawling about in their reptile form; as being entombed for a time in their aurelia or chrysalis state; as bursting from this prison, and enjoying an enlarged existence; and as busily employed in depositing their eggs in the earth, and other places, to be ripened into life by the return of spring: their associations and animosities, their arts and their manners, they have watched and described, and the picture is somewhat similar to that of the higher tribes of animals. Among these there are graminivorous creatures, harmless and weak; and among these, predacious and vindictive destroyers, furnished with formidable weapons, and cased in dreadful armour, which, unrelentingly, deal death among the feeble and the helpless. Some of these minute animals have been rendered subservient to the uses and luxuries of man, as the cantharides, the bee, the silk-worm, and the cochineal fly; but, in general, from the havoc they make among vegetables, he regards them rather as enemies than friends.

Insects seem, some of them, to have no eyes at all; some appear to be furnished with two; and some with a great many; but, like the fishes, without any eye-lids. Their mouths, in general, open in a direction contrary to that of other animals; and some of them are furnished with a proboscis or trunk. Other animals generally breathe through the mouth; these have been found to breathe through openings in their sides; and an air less pure, or a nitrogenous air that would stifle the more perfect animals, but nourish plants,

serves these creatures for the purpose of respiration. But of all the marks whereby they stand distinguished from animals of the higher orders, a want of docility, or an utter ignorance of and inattention to the will of man, appears the most striking. Quadrupeds and birds have been brought to be very tractable and attentive to instruction; and even serpents have been taught to come at a call, and perform a variety of motions at command; but these unintelligent creatures, and with them we may reckon fishes in general, seem altogether incapable of varying their actions, or of submitting to instruction; and only regard man like any larger animal; only observe him to flee from his presence, or to feed upon his body.

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PART III.

PICTURESQUE AND GENERAL SKETCHES OF THE DIFFERENT PARTS OF THE EARTH; AND THE VARIED APPEARANCES AND MANNERS OF ITS INHABITANTS, BOTH MAN AND BRUTE.

SECTION IX.

Of the Diversity produced by Climate and Domestication; Reduction of Mankind into three Grand Divisions; and Establishment of a Colony at Botany Bay.

IF we take a general view of the regions of the earth, we shall find that, from the variety of climates, of soils, and from many other causes, life and its conveniences are variously supplied, and in very different measures, in the several habitable parts of our globe. From the prodigious ridgy mountains and extensive sandy deserts, or the ever flourishing and luxuriant landscapes at the equator, where the most exquisite and delicious fruits spontaneously grow in exuberant profusion; where the waters and the savannahs, the fields, and the forests, all teem with life; from these glowing climes, to the cold and frozen pole, where life and vegetation seem quite extinct, and the earth and the waters are stiffened in frigidity; all along the convexity of the globe the scene is ever changing, and man as well as brute, and beasts as well as plants, all are influenced by the variety.

99. *Diversity of Figure in Man and Quadrupeds.*] The changes that the human species have undergone, from the difference of climate, soil, food, manner of life, and other accidental causes, are astonishing, insomuch, that some have called in question our common consanguinity. However, when we consider how regular and slow the gradations are, from the black complexion to the brown; from this to the

fair, generally varying by imperceptible degrees with the climate, we shall perhaps have but little reason to suppose it necessary that different species of men should have been created to produce the variety observable at this day.

That climate is capable of operating very powerfully upon man, may rather cease to be marvellous, when we consider how much more the lower orders of the creation are affected by its influence. In fact, many of these are confined to particular countries and climes, and are found nowhere else, while man, the child of every climate, and tenant of every soil, inhabits the different regions of the earth, from the accumulated snows of the cold and frozen poles, to the glowing tracks of the torrid zone. It is true, he has many arts of evading the severities of inclement skies, with which the brute creation is unfurnished; and this seems to give him a superiority, which also the domestic animals derive from his protection, and are thus enabled to accompany him in his peregrinations. By his superior intellects, rather than finer formation, he is enabled to become the lord of the earth; by these, by association, and by labour, which is his lot, he has reduced the beasts of the field to his obedience; by these, the howling savage, that would alike prey upon him and his flock, he has driven to the distant recesses of the wilderness; by these, he is enabled to form and guide the crooked plough, the canoe, or more stately bark; to traverse the expanse of unfathomable waters; to draw bread from the thistle and thorn-producing ground, till he returns thereto; and by these, notwithstanding the living creatures, and even the elements, seem to offer violence to his person and his labours, he finds the earth has been given him for his habitation, and the sea for an inheritance. To describe the persons of the people of our own nation, would be exceedingly difficult, and might here seem superfluous; as the best method of acquiring the information, is by looking about us. It is however curious to observe, in those countries where arts and sciences are cultivated, and where the manner of life is consequently various among the inhabitants, the variety of figure, stature, and complexion that is found in their persons. How different, in their appearance, is the man who works in the fields, or at some laborious business, from the student or minute artist, effeminate and pale by their employ within doors; or the cit, grown fat with luxurious living! What different habits are imposed on their constitutions, and how different the effects they naturally produce. But these different distinctions, however they may hold in general, do not invariably mark the individual; this indeed can hardly be expected where these different descriptions of people are so constantly intermixing with each other. Among these, therefore, we should hardly expect that their outward figure should nationally characterize them. Though the Frenchman seems to differ rather in person from his neighbours, the Hollander or Spaniard; and though the most ancient inhabitants of these islands may sometimes be thus distinguished from the more mixed and later English, yet the difference seems often so minute as to escape description, and what an assimilation in their manners seems continually to render less and less distinct. It is among people who are collectively alike in their man-

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ners and circumstances in life, we may look for national characters; and those nations that live more at large than the sons of Europe, that individually draw an easy subsistence from the kindly soil they inhabit, or equally labour under the severities of inclement climes; that without distinction hasten to the waters, or join in the chase; seem generally to be strongly marked with figure, complexion, and features characteristic of the climate or soil they inhabit. Beside this, particular tribes, and sometimes whole nations, are attached to particular habits and customs, which affect their persons, and particularly characterise them, as people distinct even from their neighbours, whom perhaps only a river or a mountain divides from them. Thus, some nations, as the American Indians, have for ages been endeavouring to extirpate the beard, by plucking it out by the root; some, from a savage idea of finery, or to prevent the swarms of insects from annoying them, by bedaubing their bodies with tar, fat, or paints, have given their complexions an artificial hue of darkness; some, by boring and continually drawing down their ears, have at last got them to touch their shoulders; the nose, in like manner, and even the whole head, as well as the feet, by a variety of bandages, or by squeezing between boards when in an infant state, and capable of receiving the impression without destroying the subject; the skull has been brought to assume artificial deformities; and thus we may account for the flat heads of Canada, the conical ones in Asia, the flat noses of the negroes, the small feet of the Chinese, and many other varieties that have at first been introduced, not without violence, that custom has kept up, till grown into a sort of constitutional habit, and which it would, perhaps, take some generations to wear out, if the restraint were removed. But what are these artificial varieties, compared with what have been imposed on domesticated animals? These, our humble partners in the creation, appear often to be so changed, both in shape and in habit, from what they were in their native wilds, as to look like quite different creatures. By the art and assiduity of man, the horse is improved in speed or in strength to suit his convenience: the sheep becomes helpless and covered with long wool, to furnish him with raiment: the cow, that is a fierce and bellowing brute, when in the forest, becomes, under his care, gentle in its manners, and supplies him with milk, or bows its neck to the yoke. In Ethiopia, it has been taught to tend him his sheep, to tread out the corn, and, like the elephant and rhinoceros, to fight him his battles: and the dog appears to have gone through innumerable varieties to suit his different purposes, and gratify his humours.

To observe more particularly the influence of climate on the different orders of the creation, man, though he appears to be very much affected thereby, will perhaps be found less so than most other creatures.

100. *General View of the Diversity in Man.* If we cast our eyes around us, on the people of our own country, we may pretty much see the appearances of all the polished nations of Europe; pretty much the same features appear to mark the northern nations of Africa, and those also of the western parts of Asia, from the borders of Europe to the Indian Ocean. As the extensive tracks which these inhabit,

have included most of the people we have read of in our records of antiquity, whether Jews or Egyptians, Babylonians, Medes, or Persians, Grecians or Romans, we may perhaps see, in the persons of any of these people thus widely disseminated, a pretty good likeness of what we read of the first ages of mankind, if we make an allowance for the caprice of dress, and for the taking off, or fantastically disfiguring the beard. Of the numerous people here mentioned, the nations of Europe, the Moors and Egyptians, the Arabs, Turks, Persians, and Indians, if we regard merely the colour, it varies by slow and imperceptible degrees, from the fair complexion of the northern nations to the swarthy Spaniard and Moor; and from these to the olive-coloured and black Asiatic. In the countenances of all these, however, there seems a beautiful symmetry, or a certain neatness and delicacy of feature, which does not appear to us, either in the flat noses or thick lips of the inhabitants of the torrid regions of Negroland and Guinea, or in the broad faces and high cheeks of the Laplanders and little Tartars of the bleak and frozen zone.

It is the persons of these the statuary and painter have taken as models in their finest compositions; from these they seem to have derived all that they term sublime and beautiful in the human figure; from these the ancients sculptured their idols; and from these the moderns have, with the addition of birds wings, designed their fanciful representations of angels, and the queer, bodiless, little monsters, to which they give the name of cherubs, and which, from their unnatural structures, cannot be possessed of animal life.

But while we imagine we discover a certain beauty and delicacy of expression in the features of this widely diffused people, and are ready to account those of the Negroes, or Greenlanders, as coarse, rude, or deformed, and as produced by their suffering the last extremity of heat or cold the human constitution can endure, and by their leading a savage life; perhaps either the hardy little inhabitants of the frozen zone, or the full-grown negroes under the Line, might with as much fitness account us deviations from the proper human figure, and esteem all the delicacy we discover in our shapes, as only the effects of domestication and effeminacy. However, let nations contend how they please for superiority of feature or figure, this is found to depend merely on the clime they inhabit, and their manner of life; and as European adventurers are found to lose their fair complexions in a few generations, and become swarthy or black in hot climates, or little and stunted in cold ones, their features at the same time correspondently changing, so also the inhabitants of cold or torrid regions are found, in a similar way, to lose their original complexions and features when under the climate and customs of the temperate zone.

To speak of the human form, thus susceptible of change, and, like an humble plant, depending on the soil where it grows for its appearance, may to some appear rather degrading; but when the lot of human beings is considered, what different countries we have to inhabit, and what various modes of life to pursue, we shall have reason to admire the flexibility of the constitution, which adapts itself to the duties and habits imposed on it, and thus fits us for undergoing the many irregularities

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regularities inseparable from this life. While the human figure is found to vary all over the earth, from different causes, and that by such slow and imperceptible degrees, by passing over the less varieties, and regarding only the most obvious divisions, we may, perhaps, with some fitness, consider the whole human race under the three following distinct appearances: the Citizen, the Tartar, and the Negro.

I. Under the citizen may be included the numerous nations, already named, inhabiting Europe, the northern parts of Africa, and the western parts of Asia to the Indian Ocean. Though some of these, as a few tribes of Arabs, dwell in tents to this day, and lead a roving life, yet they generally answer the description of what is called a polished people; and some of them seem to have done so since the days of Abraham and Lot: these are the people, however different in complexion, whom we account regular-featured.

II. The Negro under the Line, being daily exposed to the direct rays of the sun, and, going almost naked, varies from the citizen, in being quite black, in having short, woolly hair, a broad, flat nose, and large tumid lips. From the equinoctial line, southward, to the Cape of Good Hope, these characteristics seem gradually rather less distinct; and, on the north, roving tribes of Arabs in the desert of Zaara, seem to form the shade between these and the Moor.

III. The Tartar of the polar regions, between four and five feet in height, seems from his bleak situation, to become less in stature than the rest of mankind; the severity of the cold produces effects in his complexion and features something similar to those endured by the Negro. The visage in these little men is large and broad, the nose flat, the mouth large, the cheek-bones high, and the complexion dark.

This description of people is found to inhabit the northern regions of Europe, Asia, and America, all round the pole, and comprehends the Laplanders, Esquimaux, Samoiède Tartars, the inhabitants of Nova Zembla, the Borandians, the Greenlanders, and the natives of Kamtschatka. The features of this people seem to prevail through the different tribes of American Indians; they are also seen to faintly have place in the persons of the Chinese and Japanese, and in the southern tracks of Asiatic Tartary, and the northern regions of Europe, to blend imperceptibly with those of the citizen.

The broad features and dark complexion seem also to obtain in the South Sea isles, and indeed in all parts of the world where the people have for ages led a roving kind of life, or been continually exposed to the open air.

It is remarkable, that, while the human form undergoes such changes from climate, and other causes, length of life seems pretty equally distributed among different nations and orders of men: the citizen on his turtle, and the peasant on his vegetable fare, the Greenlander among his native snows, and the African in the torrid zone, all appear to grow old together; and the period of their years seems more nearly equal than might have been expected.

101. *Lower Orders.*] The diminution of stature that the inhabitants of the polar regions undergo, from the severity of the cold, seems small, when

when compared with what the lower orders of the creation endure. In general, warmth and moisture seem favourable to growth, as well among the animal as vegetable tribes of creatures. Insects, as well as herbs, that with us appear of a tolerable size in the arctic countries, seem quite diminutive; while in the luxuriant regions of the torrid zone, they increase to an amazing bulk: there the spider grows to the size of an hen's egg; the butterfly spreads an expanse of wing as large as a sparrow; the toad appears as big as a duck, the oyster is a meal for eight or ten men, and the shell is, in diameter, like a small table: there also the bat, in size like a rabbit, is found a formidable enemy, and has been thought to be the original of the fabulous harpy of the ancients; the largest serpents and crocodiles, the huge hippopotamus, elephant, and rhinoceros, are all of them natives of the torrid zone. With the spotted skins of the savages of those glowing regions the showy horseman adorns his steed; while the women are supplied for convenience, or dress, with the more delicate furs of the little quadrupeds of cold and frozen climes.

The cold climates of the north, however, are not without their productions of magnitude; witness the timber their forests supply to the southern states of Europe; their seas also produce fishes of the largest size: and, on land, the white bear is an animal of great magnitude and strength, and untameable ferocity: their deer are also of a very large size; while the chrevotin of Africa, or little Guinea deer, about seven inches high, and twelve inches long, with legs almost as small as the shank of a pipe, this neat little creature, looking like a stag in miniature, may shew that the torrid zone is not without its minute productions.

To survey at large the several nations of the world, and their various manners; to take a general view of the curiously diversified quarters of the globe, we may set out in imagination on a tour through the earth, and, sweeping round the terrestrial ball, sketch the various prospects that arise as we pass along.

It must be by desultory tracks that we obtain any thing like a general view of the earth. Let us commence with our Antipodes, run hastily over the islands of the Pacific; pass from them to the continental part of Asia, visit its southern states in the order of the light of day; make a hasty course round Africa; pass thence to America; sweep round the northern pole; and, finally, in our view of the nations of the earth, make our descent upon Europe.

102. *Transportation of Convicts to Botany Bay.*] From the remote situation of the southern parts of the world from the nations of Europe, we have as yet but little acquaintance with those distant regions; but from the resolution of government to transport convicts thither, it may appear somewhat probable that the language and manners of our nation may some time hence obtain among a people that are nearly our antipodes: and many of the people of these islands may be highly interested in what is going on in the parts of the earth opposite to our feet. Botany Bay lies in the South Sea, on the east coast of New Holland (which appears to be an island almost as large as all Europe) a voyage of about thirteen thousand miles sailing from this part

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part of the world, and is the place intended for colonization by the English.

This establishment has now taken place at Port Jackson, which is about fifteen miles northward of Botany Bay, and, on account of its fine harbour, was preferred to the latter. Its entrance is about two miles broad; it extends into a spacious bason, runs about thirteen miles into the country, and contains no less than one hundred small coves, formed by narrow necks of land.

Sydney Cove, on the south side of the harbour, between five and six miles from the entrance, is the place of the principal settlement: a romantic spot, exhibiting a beautiful variety of rocks, wood, and water. The climate is considered as equal to the finest in Europe; and the plants and fruit-trees brought from Brazil and the Cape of Good Hope, with the vegetables from Europe, thrive very well.

This establishment seems at least to have been attended with some happy consequences. Some victims have hereby been rescued from the last extremity of guilt and punishment; and, in that distant quarter, removed from the temptations which arise from the crooked policy of luxurious, burdened, and distracted Europe, live in security and peace. The worst consequences to be apprehended from it, seem to be the hurt and corruption of the poor innocent natives, by the introduction of European manners and superstition.

The natives of New Holland are devoid of clothing, yet seem fond of ornamenting their heads and necks with European toys. They seem to have no great aversion to the new settlers: the only acts of hostility they ever committed, were on account of the latter occupying their fishing-grounds; for their setting fire to the corn of the colonists seems to have proceeded more from ignorance than malice, as they are unacquainted with agriculture. To prevent however the repetition of this evil, a new settlement has been formed at Norfolk-Island; which beautiful and fertile spot is about 1200 miles E. of New Holland, and 1000 N. W. of New Zealand.

SECTION X.

*Islands in the South Seas, the Indian and Pacific Oceans,
with an Abstract of Cook's Voyage, &c.*

103. *Polar Regions, Mountains, and Flat Ice.*] The southern parts of the globe endure a longer winter than we do in the northern hemisphere; and those that have attempted to navigate those seas, have found the way embarrassed and blocked up by vast fields and prodigious mountains of ice, before they reached latitudes equal to some that are annually passed in the northern ocean; so that whether it may be sea or land that invests the south pole, must remain in uncertainty; and indeed it seems of little consequence to know the aspect of those parts, where life seems to be shut out by the rigour of frost. Navigators however have sailed far enough southward to get within the continual

continual glare of the six-months day, and gaze on the dreary prospect of ice and of snows, that seem for thousands, and tens of thousands of miles, to encompass the pole. The mountains of ice that rear themselves to astonishing heights above the surface of the waters, and that meet the mariner's eye at a great distance, seem to be some of the most curious appearances in nature. These unstable hills are seen also in the northern seas, sometimes floating away to the warmer climates on the south, to be melted down, and mingled with the waters of the ocean; at other times, arrested by obstructing shores, they take a fixed station, and appear higher than the mountains ashore. Naturalists, in accounting for the origin and accumulation of these enormous masses, observe that the flat and the mountain-ice are of different kinds, and differently formed; the flat ice is the surface of the sea congealed by cold, which, on being dissolved, is found to be salt; on the contrary, the mountain-ice has only a thin shell of salt ice over it, formed from the spray, or waves of the sea, washing against it: it is principally composed of fresh water, intermixed with gravel, earth, brushwood, &c. and produced upon land, especially against the sides of hills, where thaws of a short duration sometimes take place. On these occasions the water runs down from the springs, and melting snows at the top, but is presently stiffened by the frost. By depositions of this kind, and by frequent falls of snow and rain, the mass continues to accumulate, till forming a tremendous precipice, overhanging the deep, it at length tumbles down with a noise like thunder, and with a force sufficient to overset a poor Greenlander in his little boat at a very great distance. From this account of the origin of ice-mountains, it should seem that there must be tracks of land about the southern pole: indeed it seems possible that there may be not only land, but even numerous nations, who may enjoy their native snows as much as does the Greenlander; though appearances, it must be owned, are against this supposition, as the discoverable lands which lie nearest the south pole, have been found barren, bleak, and destitute of inhabitants; and some seem to think, that the flat-ice, broken as it generally is by perpendicular fissures, may accumulate into those enormous mountain-like masses, by being dashed one against another, and by being heaped one over another by the commotions of the sea; thus, by the vast tracks of the ice driving one against another, enormous lumps of it are sometimes seen to be raised out of the water, tumbling one over another, cracking, breaking, and shivering with a noise like thunder.

104. *South Sea Islands, and their Productions.*] Leaving, however, these regions of conjecture, and taking our departure from the enormous barriers of ice which have blocked them up from the view of European adventurers, the first lands that offer themselves to view are the islands of the South Sea; many of these exhibit scenes interesting, beautiful, and curious. Here no longer dreary tracks of ice, and solitary wilds assail the eye, but beautiful prospects of verdant isles, enlivened with columns of smoke, which bespeak the haunts of men at hand, and diversify the face of that world of waters, cheer the drooping mariner, and promise him a recruit from his sickness, and a respite from his toils. This larger half of the earth, the great South

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Sea and Pacific Ocean, was long unknown to the nations of Europe, even after the discovery of America; and during this uncertainty, theorists amused themselves with fancying that there must be a southern continent to balance, as they expressed it, the northern parts of the globe. To find this *terra incognita australis*, has long been the employment of some of the ablest navigators in Europe. Among these, James Cook has, perhaps, been most eminent: in fact, he has hardly left unexplored a track sufficiently large to merit the name of a continent, even on the supposition of its being all land.

105. *Productions.*] A few of the islands that lie in high latitudes in the South Sea, have been found desolate and uninhabited, except by animals of passage, as birds and seals; and these, from their being unacquainted with man in these solitudes, were so tame as to let the sailors come and knock them on the head, without attempting to flee. The other isles are generally fertile and pleasant, their hills being covered with verdure, and pouring down pleasant streams, the soil producing spontaneously bread-fruit, cocoa-nuts, bananas, nuts, apples, plantains, sweet potatoes, yams, sugar-canes, and other vegetable fare; the forests furnish large and valuable timber; the seas supply a variety of delicious fish; their fowls are numerous, and of various kinds; their land-animals, besides a few rats, are hogs and dogs; the dogs are fed upon vegetables, and make a part of the food of the natives, a part not at all inferior to English lamb, if we may take the opinion of the English, who partook with them of the repast. Sailors, however, it may be observed, just come from a long voyage and salt provisions, would hardly be employed as caterers for a city feast. Those islands that are not very remote from the continent, as New Holland and New Guinea, afford a variety of other animals. Happy isles! where the fabled golden age seems in many parts to be realized; and where, in others, a very small labour of tillage might more than supply every deficiency: and what thrice happy people! secluded from the tumults that distract the ancient world and deform the page of history, are the possessors of these isles!

106. *Manners, &c. of the Islanders.*] The tender-minded and peaceful may observe, with concern, that in these sequestered spots, evil prevails as well as in the more busy parts of the world. The adventurers generally, on appearing on their coasts, found these simple people, though unacquainted with metals, were not without their instruments of war, which they ventured for a while to oppose to the more destructive arms of the Europeans; and though the expeditions appear to have been rather intended for the promotion of science, and the extending of commerce in a peaceable way, it is to be lamented that the Indians, many of them, lost their lives in the unequal contest. These poor people, whatever opinion they might entertain of the strangers, at first, generally came down on the beach, to oppose their landing, with arrows, stones, and lances; they sometimes even ventured in their canoes to surround the vessels, and heave in their offensive weapons among the people, which were answered by others more alarming and effective; and when they came to a better understanding of the design of the Europeans, even then they scrupled not to take
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from them, by stealth and sometimes by force, whatever they could carry off: they would snatch the hats off their heads, the handkerchiefs from their necks, and carry off, with amazing dexterity, every little implement they could lay their hands on; as clothes, knives, pistols, the mathematical instruments: they even ventured on their boats and guns; and these depredations brought on contests, which sometimes terminated in bloodshed. But of all the baits that ever fell in the way of the poor Indian, nails appear to have been by far the most alluring; while their larger tools, their hatchets, or axes, for forming the canoes, and other weighty operations, were made of hard stones; while, for points to their arrows, their lances, or fishing-tools, they had prepared sharp pieces of hard wood, and bones of fishes; while these little stones, shells, and human bones, formed their apparatus of drills, chisels, razors, &c. nails, according to their different sizes and shapes, might themselves appear suited to answer every purpose. For nails they sold their pigs, plantains, cocoa-nuts, and other produce: in fact, nails and European hatchets, together with beads, glasses, or trinkets, became the medium of trade, or the specie of the South Sea.

The surprise with which these simple people were struck, on their first becoming acquainted with a variety of things with which we are familiar in Europe, affords something amusing.—The officers are at breakfast, and fill the pot, by turning the cock of the tea-kitchen; the Indian turns it also, and holds his hand to receive the water; he is scalded, screams out by the painful experiment, finds there are other vessels besides those of cocoa-shells that may be set on the fire, and that water may be made hot: he attempts to use their knives and forks; but when he sets about to eat, his hand indeed comes very naturally to his mouth in the old way, but the meat on the point of his new-fangled tool, passes off to his opposite ear: he looks through the telescope, and sees objects at a distance, he withdraws his eye, and is amazed they are vanished: he scampers off affrighted, or stands in silent horror, when he views the formidable gun dealing death at a distance, and bringing down from their heights the fleetest passengers of the air: he is astonished at the sudden appearance of the Indian in the looking-glass: he looks behind it, and finds nobody there; he steals another glance, the glance is returned, he gets familiar with the image, and cannot but smile; the shadow smiles also, and he laughs out immoderately. The English walking on a hot day into one of their sheds, which are very extensive, and the people crowding round them, one of the strangers being too warm, lifts his peruke to wipe his head; the poor natives flee with horror, thinking he was taking his head to pieces. Thus childish appeared the conduct of the inhabitants of the South Sea islands, and well would it have been if they themselves had been as innocent as their manners seemed simple: this however was so far from being the case, that their history affords, perhaps, one of the most melancholy pictures of the depravity of mankind to be met with upon earth.

Some geographers and historians, a little before their discovering these islands, seemed beginning to treat as fabulous the accounts of

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Anthropophagi, as handed down by the antients, or related by modern travellers, and fitted only to furnish with the marvellous, the romantic page of a Robinson Crusoe. In the history of some of these islanders, however, we have a melancholy proof of the existence of cruel cannibals, and indeed of many descriptions of barbarity. In their wars with each other, they give no quarter, but with a savage ferocity, cut up the bodies of their enemies, and devour them, satiating at once their hunger and revenge; for as the Greeks believed those to be doomed to wander solitary ghosts on the banks of the Styx, whose remains were let to lie unburied on the earth, so some of these hold, that the souls of those whose bodies have been thus devoured, suffer torture in the other world, of which, however, their notions are very confused. They cut out their under-jaws, and hang them up in their dwellings as trophies of victory: they offer up human sacrifices to their Etoo, or God; and the victim to these gloomy and horrid rites is a criminal, a stroller, or one of the poorest class of people; any helpless or friendless poor fellow whom the chief may think fit to mention, and to whom his servants only give the notice, by knocking him down, and immediately putting him to death by clubs and stones. As offerings to their deity, they also knock out their own teeth, and cut the joints from their fingers. As the eree, or king, may order his subject to be sacrificed, so those of the lower orders may kill a thief with impunity; and for the life of a slave, a present to the master when his anger has subsided, is found to be an atonement. Polygamy is practised by both sexes; and the fathers prostitute their daughters for hire; and the purchaser may keep her for his wife, or may kill the children, and put her away; or the father will take her from him, if he gets a more lucrative offer. In the violence of grief for the death of a friend or relation, or in the excess of joy on their return from afar, or from dangers, they weep profusely, and beat their cheeks and breasts, or strike a shark's tooth into their head, and mingle their blood with their tears:—a custom forbidden to the sons of Aaron.

At this affecting scene, the natives are often unconcerned; and the actors themselves, when the moments of passion are over, plunge into the sea to wash themselves, and seem to forget it. A people thus violent and unsteady in their temper, must necessarily be unsteady and fickle in their conduct:—this, poor Cook, in his last voyage, fatally experienced among a people with whom he had been on very friendly terms, and who revered him as a God; he fell a victim to their sudden rage, and was sacrificed or devoured.

They are yet without the knowledge of preparing, by fermentation, liquors that intoxicate, their drink being principally water, and the milk of the cocoa-nut; they, however, like other nations, have their favourite beverage, with which they entertain their friends; the name they give it is kava. The kava is produced from the root of a kind of pepper, in a singular sort of way; the people take each a piece of the root in their mouths, and chew it like tobacco, till the saliva flows; a bowl is then handed about for each of them to spit into. When a sufficiency of liquid is thus obtained, the vessel is handed to the chief and his guests to regale themselves therewith; and however

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nauseous we might account such a potion, they prefer it to the liquors we make use of. The kava, however, is found to impair the constitution; and when taken to excess, will produce even madness.

Such of them as wear clothes, use them generally as a loose mantle: they are made of strong grass, braided together, or wove like silk mats, and of a kind of cloth which they make of the bark of the mulberry, or cloth-tree, by taking off the hard outer rind, steeping it in the water till it is soft, and then beating it out with a square wooden beetle, which has longitudinal grooves on its different sides, from coarse to fine, and these leave a grain on the cloth like that on paper, but a great deal more coarse; they then bleach and dye it of different colours, and in curious patterns. Besides this and trinkets, and dressing the hair, and decorating it with feathers, they have other methods of making themselves fine, beyond what any European nations practise: these indeed are painful, but their effects are lasting; they tattoo their faces and different parts of their bodies, in lines and curves, and checks and volutes; this they do by puncturing the skin, and rubbing in paint; and this fixes an indelible stain. Both men and women uncover their whole bodies, by way of respect, as Europeans take off their hats. Their huts are framed with posts and wicker work, and covered with bark and leaves; their cloth and mats they also use as carpets. They have their games, or athletic exercises, in which they shew uncommon agility, and great good humour, boxing and wrestling with astonishing violence, so that the sailors did not chuse to accept their invitation to partake in the sports. They have their dramas and dances, and concerts of vocal music; to these they add a kind of drum, and a whistle made of reed, which they sound by applying to the nose. They bake their meat in ovens or holes, which they dig in the ground, and line with stones; in these they kindle a fire, and when the place is sufficiently hot, they remove the ashes, and put in the meat (sometimes a whole hog, wrapt up in leaves) and then cover it up with hot stones and earth: in this manner it retains its succulency, and is found superior to the cookery of Europe.

A very short sketch of the last voyage of James Cook, may perhaps here be rather interesting, and may serve to convey a farther account of these people.

[107. *Abstract of Cook's Voyage.*] It had long been thought, if a passage could be discovered between the Atlantic and Pacific Oceans on the north, the navigation to China, India, and the other distant parts of the world, would thus be much shortened, and that commerce would consequently benefit much by the event. It was imagined, that as the utmost bounds of Hudson's and Baffin's Bays were not yet known, a passage through these to the Pacific might possibly be obtained: it was thought also, that the communication between the two oceans might possibly be open across the northern pole. Under these ideas, many adventurers, both public and private attempted the navigation; they generally found the way blocked up with the ice, and were obliged to return; some got so embarrassed in it, that they found it difficult to get clear; and some there were that perished in the hardy attempt.

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In order to determine whether such a passage could be effected, the Resolution, Captain Cook, and Discovery, Captain Clarke, were equipped, with suitable stores, in a very plentiful way, and sent to the South Sea. It was ordered that they should there make any further discoveries in their power, distribute among the islands, for the benefit of the natives or future navigators, the variety of domestic animals our country affords, leave Omai at home, who had heretofore come with them from the island of Otaheite, and thence proceed to the high latitudes on the north; there to attempt the much-desired passage to the Atlantic; and in case they should fail, return home the old way.

In the year 1776, a little after midsummer, they set sail from Plymouth; and on the coming on of our winter, we find them beginning the summer of the southern hemisphere at the Cape of Good Hope. The whole year 1777, within a few days, they spent south of the Line, and visited successively New Holland, New Zealand, the Friendly and Society Isles, besides other detached islands.

108. *New Holland.*] After leaving the Cape, and passing, or barely touching at some bleak and uninhabited isles, it was early in the year 1777 they arrived at the most southern part of New Holland; here they recruited their stock of wood and water, and cut some grass for their cattle, the country indeed affording little more for their refreshment: the simple wishes of the natives, however, seem but equal to the supply. The philosopher Diogenes, who lived in a tub, and, in his zeal against luxury, threw away his dish when he saw a man take a drink at the brook in the hollow of his hand,—had the cynic been here, he might have thought he abounded in luxury and superfluity. Of all the people who inhabit the world, these natives of New Holland are perhaps the most easily supported; they live without clothes, without houses, without bread, or a supply of vegetables; they are without canoes, and unacquainted with the method of catching large fish; they derive a frugal subsistence from the shell-fish they can pick up from the shore; they lie down, and take up their repose on the grass, or, like the fauns of the antients, take up their abode in hollow trees.

The English, on their arrival among these simple people, observed their manners to be mild, unsuspecting, and unreserved; they handed them bread; but this they threw away: they offered them fish; but this they refused: they presented them fowl; of this they ate, and signified that they liked it. They shewed them iron; and, what was surprising, they cared not for it, yet they had a sort of lance; but shewed no great skill in using them. They have also a method of hollowing out the trees, by cutting or gashing them out with stones. One side of the trunk they leave pretty strong; the cavity is large enough to let six or seven of them sit down in it, with a fire in the middle; and the tree thus excavated, is notwithstanding sufficiently supplied with verdure. Their seas abound with fish, their forests with fowl; but the quadrupeds few. Some were so debased as to offer presents to the women, in order to seduce them; but these they spurned from with indignity. It will be well if their manners are improved in the end, by the colonization of their country with the English.

109. *New Zealand.*] The adventurers, after leaving a couple of pigs in the wood for the improvement of this land, proceeded on their voyage to the islands of New Zealand. Here the scene was wonderfully changed, and the people seemed to have made considerable advances in the arts of life: they had contrived to build themselves stately canoes, though without the use of metals; and so expert were they in erecting their habitations on shore, that in the space of half an hour they could both clear the ground, that was matted and embarrassed with shrubbery, and build on it a town, or cover it with their huts. They had a sort of regular fortifications to flee to, built on the tops of hills, or entrenched in the lower grounds: they practise a little tillage; and their nets for hauling the seyne are of vast extent, and the common property of a township or district. Their fondness for carving, and dexterity in that art, appeared as well in the curious tattooing of their faces, as the manner of ornamenting their canoes and different utensils or weapons. There is a certain etiquette or decorum of manners observed among them: they join their noses together, by way of salute. They are kind and hospitable to travelling strangers. These people wear clothes; and the women are distinguishable from the men in their manner of dress, their lower garments being always fast bound about them. In New Zealand, the most implacable ferocity was found among the men, and unchastity in the women, with the parents concurrence. Towards their enemies, they are perhaps the fiercest and most desperate of all mortals; they give no quarter; and feed upon the slain! Inured from their infancy to the practice of war, they seem habitually suspicious, and ever on the watch; they seldom lay down their arms, and then they take care they shall be within their reach, and ready for a snatch. As fighting forms a principal part of their employment, so also it appears to be their delight. They join together in the war-song, and animate each other in horrid concert: with muscular exertions they distend their eye-lids, distort their features, put out their tongues to an enormous length, and stare most hideously; and the children are adepts in the manners of their fathers. It was these people that, in a former voyage of Cook, cut off the Adventure's boat's crew, and fed on their mangled bodies; and these are the people most nearly our antipodes. The animals of New Zealand are rats, and a kind of fox-dog. The country is hilly, and therefore not well adapted for agriculture. The forests are grand, stately, and luxuriant.

110. *Friendly and Society Isles.*] On the coming on of our spring, 1777, or the autumn of the southern hemisphere, the navigators departed from New Zealand, and proceeded northward to the Friendly and Society Isles: these they enriched with their presents of animals and various useful plants. In these places they spent most of the remaining part of the year, mixing with the natives in their festivals, customs, and ceremonies: here they met with kindness, generosity, and friendship, and lamented that the bloody practice of offering human sacrifices should obtain among a people in other respects benevolent and humane. However, if we except the custom of devouring human flesh, they very much answer the general description already given of the

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the islanders. After completing their astronomical and nautical observations, and fixing Omai in a comfortable house, with his cattle about him, and his garden in a thriving way, at the latter end of the year, they took their departure, proceeded towards the north, and crossed the Line. The whole of the years 1778 and 1779 they spent in the Pacific, north of the equator.

III. *Sandwich Islands.*] It was early in 1778 that they fell in with another cluster of islands, fertile and pleasant: these they named after the Earl of Sandwich. The people they found friendly, like the generality of the islanders, and much the same in their manner of life; others had received our strangers by reciting songs in concert; these welcomed them by extending their arms. The men shewed the most tender affection to their families, relieving their wives in the tending of their children. They seemed most ingenious manufacturers of their cloth, equaling, in their colouring, the patterns of Europe and China: they excelled in vocal music, and were fond of pantomimical drollery, putting gourds over their heads, by way of masques. They have a variety of other diversions among them; as a sort of chess, bowls, quoits, and the tossing and catching of a number of little balls in the air; but their greatest diversions seemed to be in the water, on a little bit of board; and in this they shewed surprising address, agility, and courage. Their method was, when the sea was uncommonly rough, and a prodigious surf was raised among the rocks, as follows: they went out with their piece of board, and watching the approach of the billows, they dived through them, without being taken up by them and dashed against the shore. When they had passed the surf, and fixed themselves to their liking on their little board, they then watched the coming of a prodigious swell, and artfully giving themselves up to it, were borne aloft, and carried on it to land; and in the midst of such a flight, while the English were fearing their sudden destruction, they would dexterously evade the danger, by giving up their little carriage to be at once dashed in pieces against the rocks, to the astonishment of the sailors. The women would take their children in their arms, and swim ashore from the ships, through tremendous billows; and on the oversetting of a canoe, even the four-year-old children would play a hundred little tricks in the water, till the vessel was righted.

112. *Western Shore of America.*] The adventurers soon departed from the Sandwich Isles, and reached the western shore of America early in the spring. They explored this remote coast, unknown to Europeans to a very high latitude, in search of a passage to Europe on the north-east. Here the natives were clad in skins, and sold their furs to the strangers for iron and trinkets. They offered them also for sale, human skulls and hands not yet stripped of the flesh; they seemed fonder of disfiguring their bodies than even the New Zealanders; those had slit the ear, which is a cartilaginous substance; in such a way, that it answered as a belt to stick a knife in. These American Indians slit the under lip in such a manner, that they appeared to have two mouths. They had also holes bored through their cheeks, in which they placed shells or teeth, sticking out. They also cover

themselves with masques, and go on all fours, in order to steal upon their game in the woods.

113. *Vicinity of Asia and America.*] The adventurers fell in with some isles far to the north, where they met with some Russians, who had settled there for the sake of the fur-trade. From these they received some information respecting those seas, and a couple of letters to take to Kamtschatka, and then proceeded north, till they found the continents of Asia and America within forty miles of each other. Having passed these straits, which lie close at the beginning of the frigid zone, they found a large sea, but blocked up and embarrassed with ice. After some fruitless efforts to make the passage on the north, and considering the summer was now almost spent, they returned to Owyhee, one of the Sandwich Isles, in the latter part of 1778.

114. *Owyhee, and Death of James Cook.*] Here the people, well pleased with their return, received them with songs and shoutings of joy; they met them in their canoes, and crowded on board the vessels, swarming on the decks and rigging like bees, insomuch, that the *Discovery* seemed to sink with their weight. Multitudes of women and boys, who could not get canoes, came swimming in shoals round the vessels: and when they could not get on board, they kept playing the remainder of the day in the water. The most unreserved and active friendship seemed mutually to subsist between the natives and the visitants during their stay; and on the latter leaving the island, and intimating to the others that they would never more return, their departure was accompanied with lamentation and tears. It happened that the weather came on somewhat stormy, and the fore-mast of the *Resolution* was sprung in the gale. This made it necessary for them to return to their former station; but how great was their surprize when they entered the bay, which before had been alive with multitudes of the people paddling about in the water! It now appeared one solitary scene. There was no canoe came out to meet them, with songs and shouts to hail their return. This seemed inexplicable; it was found, however, that the bay had been tabooed, or forbid; that their friend, the king Tereaboo had removed to another part of the country, and that the people had consequently departed from the coast. It should seem also that the natives might be very much surprised at their sudden return, and might apprehend that they had broken their word, and had some evil design. Be this how it may, matters remained not long thus: a commerce was once more established between them; the coast, the bay, and the vessels, became crowded; their pigs and their plantains were brought down from the country as before; the king and his family did our people the honour of their visits; but the priests became their most particular friends. To secure the workmen in their necessary operations ashore, from the depredations of such as were disposed to pillage, they took up their abode with them, and stuck up their wands to taboo the place from the incursions of the natives; the chiefs and the people, however, were not all thus civil, but rather seemed to discover some marks of impatience and dislike. Some of them had the audacity and address to carry off the cutter; and when the commander at the observatory
ashore,

115. *Kamtschatka, the Return.*] It was in spring they departed from the Sandwich Isles, once more to attempt a passage to Europe on the north: they proceeded to Kamtschatka, a country which forms the eastern coast of Asia, far to the north. This part of the world, though so extremely remote from the nations of Europe, acknowledges the arbitrary sceptre of the Rus's. Here, in a land of ice and of snows, of bears and of wolves, and where the natives adopt the awkward gestures of the bears in their merriments and dancings; and where they acknowledge them as their preceptors in surgery and physic, having observed and adopted the herbs they have recourse to when languid or wounded; here they experienced politeness and hospitality. After spending some years in solitary seas, and among nations of Indians, even the infant advances that were made in arts and refinement in this dreary land, must have given it an air of Europe, and revived the spirits of the sailors. On this bleak coast their eyes were first feasted, after leaving the isles, with the view of a light-house: it stands on the Bluff Head, at the entrance of Awatska Bay, and is lighted when Russian vessels are expected on the coast; other ships scarcely ever appearing on those solitary seas. On their gaining the bay, and coming to an anchor, they examined every corner with their glasses, in search of Peter and Paul's Town, a place they conceived to be of some strength and consideration. At length they discovered a few miserable log-houses, and some conical huts, raised on poles, amounting in all to about thirty; which, from their situation, notwithstanding all the respect they wished to entertain for a Russian Ostrog, they were under a necessity of concluding to be Petropaulouiskoi. They could not for a long time perceive any sign of a living creature in the place. The next day, however, four of our people being set on the ice to go to the town, after observing some men hurrying backward and forward, they saw one of the inhabitants coming down on a sledge, drawn by dogs: he gazed a while at the strangers, and then set off back again. Another driver came down, in like manner, and called out to them. They held up the letters they had received the preceding summer from the Russian fur-traders, addressed to the commander at Petropaulouiskoi, and the governor of Kamtschatka. Upon this the driver turned about, and set off back again in full speed: a guard of thirty soldiers then met them on the ice; and these they accompanied to the Ostrog, where they were kindly entertained, when once they made them understand they had not come as enemies. On their leaving the village, each was accommodated with a sledge, dogs, and driver; one was allotted also to carry the two boat-hooks they had brought with them; at which the sailors were highly diverted. At this place they got a supply of cattle and flour, and experienced extraordinary kindness from the people, especially from the governor, Major Behm. Considering the service they were engaged in as of general advantage to mankind, he thought that in every country they were entitled to the privileges of citizens; and would not receive pay for the articles supplied. "I cannot," says he, "forget my mistress's character, or my own honour so much, as to barter for the performance of a duty." Besides, he remarked, that the Kamtschatdales were but just emerging from

a state of barbarity ; that they looked up to the Russians as their patterns in every thing ; and he hoped that in future they might look upon it as their duty to assist strangers to the utmost of their power, and believe that such was the universal practice of civilized nations. The adventurers, after leaving this hospitable port, proceeded northward, and passed the strait between Asia and America. After reaching about as far as they had done the preceding year, and encountering many difficulties and dangers from the ice, which they found extended from continent to continent, and effectually prevented them from effecting the passage,—to the unspeakable joy of the whole company, the signal was made to return.

They were now heart-sick of the hardships, the dangers, and the anxieties to which they had been continually exposed, and for which their reward had been only disappointment : they now saw the end of their outgoings, and every future step as bringing them nearer home ; and, though they had a difficult and tedious voyage still before them, the sudden joy on this occasion that brightened the countenance of every individual, was perhaps greater than they would have experienced on a view of their own native shores, after long looking out for and expecting the land. Our navigators now returned to Kamtschatka, where they again met with a kind and friendly reception, recruited their naval stores, and repaired the damage done to the ships. Here also they interred the remains of the captain (Clark) who had been on the decline from the time of his leaving England, had borne his sufferings with great patience and resignation, and died a short time before their return to this port. From hence, taking their departure to known lands and frequented seas, they coasted along the island to Japan, and met with two of the craft of that nation, but declined approaching them, for fear of needlessly intimidating them, especially as they expected they might have an opportunity of an intercourse with the natives. In this however they afterwards failed, as they never got ashore at all, but proceeded on to China, where they landed at Canton in the latter end of 1779. From thence they proceeded to the Cape of Good Hope ; and from thence to Great Britain, where they arrived in the latter end of summer, 1780, after an absence of four years. It is remarkable, that in the whole of this tedious voyage, wherein they visited almost, altogether, every habitable climate of the earth, there were but five that died of sickness, three of whom were ill before they left England ; and it is equally remarkable, that the two ships were scarcely ever a day without a sight of each other during all that time.

116. *Observations on the Voyage.*] We may now take our leave of this well-conducted navigation, by observing, that this very voyage, in accounting for the peopling of the remote parts of the world, may serve as a cord to bind together all the nations of the earth into one great family, descended from one common stock. It had long been wondered how America came to be peopled ; and still more how the widely diffused islands in the great South Sea were found stocked with inhabitants.

Our navigators found Asia and America very near to each other,

ashore. where the priests attended, came on board to complain of hostilities offered by some of the natives, he found the captain, James Cook, just loading his double-barrelled piece, and preparing a party to accompany him ashore, to demand the cutter to be returned. He had heretofore in the islands, on similar occasions, secured their chiefs and detained them till restitution was made; and this way of procedure he had found easy, expeditious, and effectual. Intending the same conduct on the present occasion, the captain arrived at the house of Tereaboo, and requested that he would come on board. To this the old king made no objection. His two sons were not within, but had been sought for, and sent before; and the father rose up and accompanied the captain. The boats of the English had been stationed to guard the bay, and prevent any of the canoes from escaping, till the cutter should be brought back. In the mean time, the mother of the boys observing the military appearance of the captain and his attendants, had taken the alarm; the fears of the woman soon spread among the multitude; and the chiefs would not suffer their king to proceed. The captain seemed willing to forego his design for the present, rather than accomplish it with the spilling of blood. His little party seemed likely to be embarrassed by the multitude; and the officer proposed drawing up his men along the rocks, by the water's edge, that they might have an opportunity, if necessary, of using their arms. This was approved of, and done, and the captain left alone.

At this unfavourable juncture, an account arrived that one of the chiefs was just killed by the boats of the English, which had fired at his canoe; and the people became outrageous, determined, and bold. One of the most hardy of them confronted the captain, and brandished his weapons in a menacing manner. In vain the captain desired him to desist: he at length fired upon him; but his mat was proof against the shot. The people, enraged, bore hard upon the captain; he shot one of the foremost: immediately followed a volley of stones, which was answered with the firing of the boats and marines. The captain still fronting them, retreated towards the boats; and while he thus continued to face his assailants, they seemed none of them to have the courage to fall on him. The boats were in the mean time keeping up a smart fire on the natives; but while the captain, at the water's edge, was calling out to them to desist, the Indians stabbed him behind: he fell into the water. Their vengeance stopt not here; they set up a shout, dragged off his body, and cut it to pieces. The marines and their officer, when they had discharged their pieces, had not time to load again: the multitude rushed upon them with dismal yells, and killed four on the spot; the rest leaped into the water, and got off under the fire of the boats. One man, however, who was but a bad swimmer, continued struggling in the water, with his dimly fierce pursuers in his rear. The officer, Lieutenant Phillips, could not enjoy his own security while he saw his comrade in such perilous distress: though already wounded, he leaped out of the boat; and though he then received a blow on the head from a stone, which nearly sent him to the bottom, he snatched the poor fellow by the hair of his head, and dragged him off.

The rigging and astronomical apparatus, at the village on the other side of the bay, where the kind and friendly priests resided, being speedily got on board, the rest of the day was spent in endeavouring to bring the natives to a parley. They demanded the dead bodies, especially that of Cook, and threatened vengeance if they were not returned; but the people treated them with mockery and contempt.

Great were the military preparations on board that followed these calamities; the English, apprehensive of an attack on the vessels, under cover of the night, were all on the watch; they had their boats ready armed, and rowing at some distance round the vessels, to prevent the cables from being cut; and they found the natives were equally busy. A prodigious number of fires were kindled upon the hills; and they had reason to believe, that at that very instant they were offering up the slain as a sacrifice.

They remained the whole night undisturbed, except by the howlings and lamentations that were heard on the shore. The next morning they heard conchs blowing in the different parts of the coast, as the challenge to battle; and large parties were seen marching over the hills.

The English learned from the priests, who sent secret messages to them by night, that the flesh of their slain countrymen, together with the bones of the trunk, had been burnt; that the remaining bones of the captain had been distributed among the chiefs; those of the others had been given to the multitude. They kept up the demand for the remains of their late commander, and continued to make the necessary preparation for sea. The priests remained their unalienable friends; and others kept up their hostilities and insults, till at last they made them feel some of the weight of their resentment. The men had all along shewn themselves prompt to revenge the death of their much lamented commander; and when the natives still continued to harass and annoy them at their taking in of the water, they at length had leave given them to set fire to some of their houses. They were but men, and susceptible of sudden passion: they killed several of the people indiscriminately: they made a general conflagration; and the houses and goods of the kind priests were consumed, and the coast was filled with groans, howling, and lamentation. Among the number that were killed, the English had to lament the loss of many of their good friends; and many of the natives bewailed in tears the death of the captain, as well as that of their own countrymen.

When the Indians had been made to feel that the forbearance of the English had not proceeded from debility or fear, they at length laid aside their animosity, and became once more their friends. The remains of the poor captain were gathered together, and brought on board the vessel; they were committed to the deep with the usual solemnity, and no doubt with aching hearts, though with military parade. Provisions were again brought down as before; and at last, on the adventurers taking their departure, their farewells were received with every mark of affection and good-will.

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The people of Madagascar are extremely superstitious, and, in their uncouth notions of astrology, neither see nor imagine any thing which they do not connect with futurity. They observe the initiatory rite of the Hebrews, the company taste or swallow the blood, and conclude the ceremony with festivity, dancing, &c. They practise polygamy, marry early, and separate at pleasure; when both parties are at liberty to marry again. They seal their treaties or engagements with oaths; on which occasions, he who represents the nation, puts into a vessel, filled with brandy, some gold, silver, gun-flint; if possible some of the dust of the tomb of his ancestors, and frequently blood, which, after the manner of the ancient Scythians, the parties draw out of their own arms by incision. During these preparatives, their weapons are laid on the ground in the form of a cross. Soon after, both parties take them up, and hold them with the point in the cup, constantly stirring the contents till the agreement is made. The company then drink out of the cup till it is empty; after which they embrace and retire. When a man dies, the whole neighbourhood is apprised of it by lamentations: and such is the respect they shew for their ancestors, that it is no uncommon thing to see men of all ages weep over the tombs of their fathers, and call for their advice in the most important occurrences of life. Though in general they admit the prevailing doctrine of the two principles, they have but a confused notion of it, and exhibit no particular form of public worship whatever. In dress, their greatest finery is a pagne over their shoulders, and another over their waists.

119. *Comora Islands, and Socotora.*] The Comora Islands that lie in the Mozambique Channel, between the coast of Zanguebar and Madagascar, are five in number, and take their name from Comora, the principal one in this small archipelago. These (Mayota Moeti, and Anjuan) are but little known to us. The English Indiamen put in at the Isle of Joanna, a delightful spot, about thirty leagues in circumference, where hills that are ever green, and valleys that are always gay, present a variety of luxuriant and beautiful landscapes. Thirty thousand inhabitants, distributed into seventy-three villages, share its productions. They speak the Arabic language; and their religion is a sort of Mahometanism.

Socotora, or Zocotra, between Africa and Arabia, is also sometimes visited by the East Indiamen, and nearly answers the above description as to its inhabitants and productions. It yields, besides the fruits and plants usually found between the tropics, frankincense, gum-tragacanth, and the Socotrine aloes.

120. *Islands of La Reunion, France, and Rodrigue.*] The isles of La Reunion, or ci-devant Bourbon, France, and Mauritius, or Rodrigue, to the east of Madagascar, belong to the French. The two former are mountainous, but pleasant, fertile, and populous: the Isle of France produces great quantities of ebony and other valuable woods, and has a capacious harbour; and the little island of Rodrigue supplies abundance of turtle.

121. *Maldivia Isles.*] The Maldives lie off Cape Comorin, and extend from seven deg. twenty min. north, to one deg. south latitude, but

but are in no place more than forty leagues broad. The natives are Mahometans; and those who have visited Mecca have the privilege of wearing long beards, as marks of superior sanctity. They are said to excel in manufactures, in literature, and sciences, and to have a particular esteem for astronomy.

These islands are small, but very numerous. The prince, who exercises his sovereignty over them all, is called Sultan of thirteen provinces, and twelve thousand islands. But there is certainly much exaggeration in this sounding title; and many of the real islands are uninhabited; some being only fluctuating hills of sand and barren rocks; and the very largest, called Male, where the king usually resides, is no more than a league and a half in circumference.

Few Europeans (except the Dutch) visit these islands. They carry on a very profitable trade here in a beautiful species of shells, called *couries*, which were formerly used as money by the negroes on the Coast of Guinea in Africa. Among other vegetable productions in these islands, is a particular species of cocoa-tree, whose fruit is an excellent medicine in fevers. This tree grows to a large size; and it is confidently asserted, that the Maldivians have vessels of twenty or thirty tons burthen, whose hulls, masts, sails, rigging, anchors, and cables, are all made from this tree. It also affords them oil for their lamps, fuel to dress their food, a pretty strong kind of cloth, sugar, and candied sweetmeats.

122. *Ceylon, Andaman, and Nicobar.*] The Island of Ceylon, near Cape Comorin, on the coast of Coromandel, is two hundred and fifty miles long, and two hundred broad. This fertile island, producing almost all the fruits and riches of the Indies, is the original place of the growth of cinnamon, from which the Dutch reap such extraordinary profit. This people expelled the Portuguese from the island, and are now in possession of all the sea-coast, and to the distance of ten or twelve leagues up the country.

The Bedas, in the northern part of the isle, appear to have been the first inhabitants. Their manners and government appear to be similar to that of the Highlanders in Scotland formerly, they being distinguished into tribes, which consider themselves as so many families, headed by a chief, whose power is not absolute. Their religion is little known; and it is uncertain whether they observe any form in their worship. They go almost naked, have little intercourse with strangers, keep a watchful eye over those who travel through the district they inhabit, treat them well, and send them away as soon as possible.

The Cinglasses, a more numerous people, possess the southern part of the isle. They wear clothes, live under an arbitrary government, and have a distinction of casts, like the Hindoos, or Indians; but their religion is different.

They have, by tradition, some knowledge of the Hebrew scriptures, and believe that Ceylon was the Garden of Eden, or terrestrial paradise. Some suppose that the fleets of Solomon traded with the Cinglasses, and that from them they derived their information; while others think that they owed it to the Jews, many of whom, it is said, were settled in the higher peninsula by Nebuchadnezzar. They

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in a high but habitable latitude ; they learned also, that when the intervening sea was open, it was crossed with canoes ; when frozen, with sledges drawn by dogs. This solves the wonder respecting the Americans. The extreme distance of the South Sea islands from the continent, and the smallness of the vessels which the natives were capable of constructing and navigating, seemed incompatible with each other : it was thought that canoes could never have brought them through so immensely distant a voyage. Late discoveries, however, shew, that the islands, though generally very remote from the continents, yet they are not all so : they are very numerous, and widely diffused ; in some parts in clusters, in others in detached isles ; the nearest distance, therefore, from land to land, is not so great as was at first imagined ; besides, there may be hundreds of them yet undiscovered by the Europeans, which may serve as links to bring nearer together those which may appear to us the most distant ; and that even canoes may sometimes go to a great distance by sea : and therefore, that the islands may in this way have been peopled from the continent, is clear, from an incident that happened during this voyage. At an island two hundred leagues distant from Otabeite, Omai, to his great surprize, met with some of his countrymen. It appeared that, about twelve years before this, a number of them had been crossing in a canoe from one of the Society Isles to another, but had been blown off by adverse winds. After enduring great hardships, and most of the people dying, they were at last cast upon this island, whence they knew not how to return. The similitude between the language and manners here and those of their own country were so exact, that they were soon naturalized to this place ; and they had now become so attached to it, having formed new connections here, that when Omai proposed getting them brought back to their native home, they declined the offer.

To conclude the sketch of the islands in the South Sea, there is a great similitude prevails in the manner of them all, however remote from each other ; and their language is generally a dialect of the Malayan tongue. So that India appears to have furnished the South Sea islands with inhabitants as Tartary, on the north, has peopled America.

As, in the prospect of the earth, we have not to wait the delays of the traveller, or the disappointments of the mariner, but, fleetier than the wind, may skim along the convexity of the globe, and view, in imagination, the varied scene which it has cost them hardships and pains to descry,—we may just glance at some of the other islands of the east, passing at pleasure, in our ideal way, in the most desultory manner, from isle to isle, or from cluster to cluster, before we enter on our view of the Asiatic continent.

117. *Pelew Islands, &c.*] A more lovely picture of human nature, undistorted by modern civilization, than the general one already given of the South Sea islanders, was unfolded to the view of Europeans in the natives of the Pelew Islands, so lately as 1783. In the autumn of that year, the *Antelope*, a packet belonging to the East India company,

pany, was wrecked on this coast; and the crew experienced the greatest humanity and hospitality. This cluster of islands lies a few degrees north of the Line, and farther east than the generality of the European settlements in the East Indies. They are long but narrow, of a moderate height, and well covered with wood, producing sugar-cane, yams, cocoa-nuts, plantains, bananas, oranges, and lemons. The climate is temperate and agreeable; and the surrounding seas abound with the finest and greatest variety of fish. The natives, in general, are rather above the middle stature, have long hair, are stout, and of a deep copper colour: the men are without clothes, and the women wear only two small aprons, one behind and another before, made of the hulks of the cocoa-nut, dyed with different shades of yellow. Both men and women are tattooed; and they blacken their teeth by art. They display great ingenuity in the formation of domestic implements, fishing-tackle, &c. Their manners are extremely delicate and obliging; and the greatest chastity and delicacy of intercourse is observed between the sexes. Their government is monarchical; and the king occasionally creates his nobles, called Rupacks, or chiefs, who are distinguished by wearing a bone on their arm: a badge of honour where-with he invested the captain of the English, to whom he trusted his second son, Lee Boo, an amiable youth, who died of the small pox in England, in 1784.

Some of the principal isles in the Indian and Pacific oceans, longer known to the Europeans than all those already mentioned, are in succession in a sort of route or track from the Cape of Good Hope to Kamtschatka, as follows: Madagascar, Comora Islands, Isles of La Reunion and France, Maldives, Ceylon, Sumatra, Java, Borneo, Celebes, Molucca, and Banda Islands (or, as they are more generally called, the Spice Islands) Philippine Islands, Ladrone, or Marian Islands, Formosa, Isles of Japan and Jesso, and Kurile Isles; and between Kamtschatka and America lies the Northern Archipelago.

118. *Madagascar.*] Madagascar is a large, pleasant, and well-watered island. Vegetation is very quick here; the soil requires little labour, and naturally produces rice, potatoes, bananas, pine-apples, indigo, hemp, cotton, silk, sugar, palms, cocoas, oranges, gum-trees, and timber. The pastures are excellent, and are covered with oxen of the largest kind, and sheep exactly resembling those of Barbary. This island is divided into a great many provinces, each of which has a chief, called Dian or Lord, whose ensigns of dignity are his slaves and flocks. His council is composed of magistrates, who reside in the villages to preserve peace and administer justice. He can neither declare war without their consent, nor support it without the voluntary contribution and actual assistance of the people.

The province of Anossi, possessed by the Arabs for several centuries past, differs in its government. It is divided into districts, each of which has a petty sovereign, called Bonandrian, or descendant of Abraham. These people have not yet attained that depth of black in their complexions which marks the natives in the interior: they have not the liberty of those; and they are in the same proportion destitute of good morals.

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They acknowledge one supreme being, and believe their saints and heroes to be divinities of the second and third order in subordination. Among their deities of the second order, particular honours are paid to Buddon, who, they say, descended upon earth, to take upon himself the office of mediator between God and mankind. The priests of Buddon are persons of great consequence in Ceylon; they are not punishable by the prince, even for an attempt against his life.

The Andaman and Nicobar Islands lie near the entrance of the Bay of Bengal, and furnish the vessels that touch there with fresh provisions, and tropical fruits. They are in general overrun with woods; but being destitute of those rich mines and odoriferous groves which have so often proved the bane of the poor natives wherever they were found, no European nation has ever attempted to make a settlement there. The inhabitants are a friendly and inoffensive people, seem to pay a kind of adoration to particular caves, and express the greatest joy at the appearance of the moon.

123. *Sumatra, Java, Borneo, &c.*] The islands in the Indian Ocean, near the Straits of Sunda, are called the Sunda Islands. The chief of these are Borneo, Sumatra, and Java; the smaller ones are Bally, Lamboe, and Banca.

Sumatra, an island 900 miles in length, and from 100 to 150 in breadth, from the plenty of gold it produces, has been conjectured to be the Ophir of the Hebrews. The English and Dutch have made a few settlements on the coast. In this large, fertile, and pleasant island, the woods are much infested with tigers, and the rivers with alligators; and though great numbers of the people fall victims to their ferocity, they seem to have a superstitious apprehension of using efforts to destroy them.

The rites of marriage among the Sumatrans are very simple, somewhat like those of the people called Quakers. The parties joining hands, enter into covenant, and are pronounced man and wife: a festival follows, which is attended not only by the relations, and invited guests, but by all who chuse to repair to it; and the greater the concourse, the more is the credit of the host, who is generally, on these occasions, the father of the bride; and, to make the similitude more complete, it may be remarked, that the ancient usage of a marriage-feast is not yet relinquished by the professors of plainness and simplicity alluded to. Polygamy is allowed, but very little practised in Sumatra. Mothers carry their children here, not on the arm, as our nurses do, but slung on one side, which is a safer method, less tiresome to the nurse, and the child has the advantage of sitting in a less constrained posture. They swing their cradles, suspended from the ceilings of the rooms; but the children are not much nursed, nor confined by any swathing, or bandages; and, being suffered to roll about the floor, they soon learn to walk and shift for themselves. The inhabitants are divided into Malays (which is understood to mean Mussulmans, they having learnt to read Arabic, and submitted to circumcision) Achaneſe, Lampoons, Rejangs, and Battas. These last live in the interior, and differ from the other inhabitants in language, manners, and

and customs. They eat the bodies of their slain enemies, and hang up their skulls, as trophies, in their houses. The Sumatrans take great delight in the barbarous diversion of cock-fighting.

Enganho is an island about 60 miles from Sumatra, surrounded with rocks and breakers. The inhabitants are tall, stout, go naked, appear armed with lances and clubs, and speak a different language from the inhabitants of any of the neighbouring islands.

Java is a fertile and pleasant island. The inhabitants near the sea-side are generally Mahometans; but within land they are a sort of Gentoos, abstaining from flesh of all kinds. The women of Java are yet more absurd than those of Europe in their affectation of reserve towards the other sex; and 'the duty of marriage,' when they have entered into covenant, it is the pride of the men to fulfil as soon as possible: the women, on the contrary, endeavour to protract it. The contest sometimes lasts for several weeks; and, what will fashion not reconcile! the bridegroom, on its termination, even gives public entertainments, in celebration of his triumph.

Java is principally in the possession of the Dutch. The capital of it is Batavia, the residence of their governor-general of the Indies, who lives here in all the pomp of oriental magnificence. It is the general place of rendezvous for their East India fleets, which five times a year depart from hence in squadrons from Europe.

The suburbs of Batavia, which are inhabited by persons of almost every nation, are more populous than the city itself: the Chinese, in particular, are computed at 100,000; though 30,000 of them were cruelly massacred in 1740, by order of the Dutch governor, who, after this wicked action, embarked for Europe; but, on his arrival at the Cape of Good Hope, he was apprehended by an order from the States, and remanded back to Batavia, in order to be tried. He, however, never reached that city: it was suspected that he was thrown overboard on his passage, in order to prevent an enquiry into an action detested by all mankind.

Borneo, the largest of the Sunda Islands, is 800 miles long and 700 broad: it is unshackled with European settlements, and its trade is open to all nations. Its harbours, particularly those of Banjar, Masseen, Succadana, and Borneo, are much frequented by adventurers. Here the Chinese keep shops, and retail goods.

The Byayos, or original inhabitants, are subject to many petty kings of their own, and inhabit the most inaccessible mountains. They are a moral, chaste, and inoffensive people, and extremely social with each other. The sea-coasts are inhabited by Malayan Moors, who are governed by Mahometan princes; but the profession of the island is a mixture of idolatry and Mahometanism.

124. *Spice Islands.*] The island of Celebes, or Macassar, which, in a general view, may be considered as one of the spice islands, is 500 miles long and 200 broad, and lies under the equator. The Dutch have a fortification on it; but the internal part of it is governed by three of its own kings, the chief of whom resides in the town of Macassar.

In this, and almost all the other oriental islands, the houses are raised

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raised on posts, on account of the floods, and they are only accessible by ladders, drawn up at night for their security against venomous reptiles. The natives, whose port of Jampoden is the most capacious in that part of the world, carry on a considerable trade with the Chinese.

The inhabitants of Celebes formerly acknowledged no other gods but the sun and moon. They sacrificed to them in the public squares, having no materials which they thought valuable enough to be employed in raising temples. On their learning the opinions of the Christians and the Mahometans, these simple people were struck with dismay, as both parties threatened them with eternal punishment, if they did not yield to their doctrines. Concluding that one of the new systems of religion was the true one, notwithstanding these impious threats, the principal king of the country convened a general assembly; and, imagining that the divine power would be manifested in support of the true apostles, in an address to the Supreme Being, made use of the following expressions, amongst others: "The winds and the waves are the ministers of thy power, let them be the signals of thy will:—I shall acknowledge, as the depositaries of the oracles, the ministers of either religion, whom thou shalt cause the first to arrive in our harbours."

The missionaries of the Koran were the most active; and the sovereign and his people were circumcised: the other parts of the island soon followed their example.

The Molucca and Banda Islands, or (as they are more generally called) the Spice Islands, are sixteen in number, and lie under the equator; the principal of them are Ternate, Tydore, Machian, Motyr, Bachian, Amboyna, Gilola, Banda, and Celebes. These islands, which produce such amazing quantities of cloves, mace, and nutmegs, as to supply the whole world, had added to the luxuries of Europe above two thousand years before we know to what part of the earth we were indebted for them. The Egyptians, Arabians, and Persians formerly brought them through the Red Sea, and from thence, by the navigation of the Nile, or by caravans, to the coast of Egypt, where the Greeks, Romans, and Carthaginians, and after them other succeeding nations, resorted to purchase the silks and spices of India: till, about three hundred years since, the Portuguese, having doubled the Cape of Good Hope, settled factories in different countries in the east, and at length discovered the native land of fragrance and spices. The English, under the command of Francis Drake, were the next Europeans who visited these islands; but the Dutch have expelled them both, garrisoned the islands, and monopolized the spice trade to themselves.

It is not known who were the first inhabitants of these places; but the Javans and Malays have successively been in possession of them. At the beginning of the sixteenth century they were inhabited by a simple people, who had lately joined the superstitions of the Mahometans to those of Paganism. Their chiefs, though called kings, possessed only a limited authority, totally dependent on the will of the people. Temperate, independent, and averse from labour, they lived on the pulp and milk of the cocoa, and the meal of the sago: their only employment was hunting and fishing. The Indians eat the sago diluted

diluted with water, and, from a principle of humanity, reserve the finest part for the aged and infirm.

125. *Philippine Isles.*] The Philippines, when discovered by Magellan, received this name in honour of Philip II. of Spain, who colonized them; but were formerly known by the name of the Manillas. They are about 1100 in number, and very fertile; but the principal of them are Manilla, or Luconia, Samar, or Philippina; Masbate, Mindoro, Luban, Paragoia, Panay, Leyta, Bohol, Sibu, Negro Islands, St. John's, Xolo, and Mindanao.

They form an immense archipelago to the east of Asia. The mountains are peopled by a simple race, who have no settled habitation, and feed upon the fruits and roots which they find in the woods. When they have exhausted one spot, they go and feed upon another. All endeavours to reduce them to subjection have proved ineffectual. These appear to be the oldest inhabitants of the country. From an analogy observed between their language and that of Malabar, it has been suspected that they might have possibly come from that fruitful region of India.

The plains from which they have been driven, have been successively inhabited by colonies from China, Siam, Sumatra, Borneo, Macassar, Malacca, the Moluccas, Arabia, Spain, Portugal, and the other parts of Europe. The manners, religion, and government of these strangers evidently distinguish their several origins. The Medes are a mixture of these different people.

The city of Manilla, the capital of all the Philippines, which is finely situated, and has as convenient and safe a port as any in the world, is a large, wealthy, and populous place; the houses are elegant, the streets wide and regular; and several of the edifices superb, both public and private. Two vessels sail annually from this port to Acapulco in New Spain, loaded with the precious produce and manufactures of the east, and return freighted with silver; they belong to the king of Spain. It was one of these rich returning galleons which was taken by Anson in 1743.

126. *Ladrones.*] The Ladrones, or Marian Islands, situated 100 degrees east of the Philippines, are about twenty in number, and were discovered by Magellan in 1521. Notwithstanding their situation in the torrid zone, the climate is pretty temperate, the air pure, the sky serene, and the soil fruitful. The people, who were very numerous, and diffused in twelve islands, the only inhabited ones in this archipelago, have gradually diminished since the invasion of the Spaniards. The remainder, to the number of 7200 persons, have collected themselves in the centre of the Isle of Guam, which may be from 25 to 30 leagues in circumference. The Spaniards have a small settlement here, and most of their galleons touch at this place in their voyage from Acapulco, in America, to Manilla.

Tinian, another of the Ladrones, was once well peopled; but a dreadful mortality swept off the greatest part of the natives; and the remainder removed to Guam. Several English navigators have touched at this island, particularly Anson, who met with great refreshment for his crew, not less from the salubrity of its air than from its fruits

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and other vegetable productions, many of which are powerful antidotes against the scurvy.

The flying proas of the original natives, are said to sail after the rate of near seven leagues an hour.

127. *Formosa.*] The luxuriant island of Formosa receives its name from its extraordinary beauty: it lies to the east of China, and since the middle of the 17th century, pretty much answers the description of that country. At that time above 100,000 Chinese sought refuge here from the Tartars, who made a conquest of their country. The inhabitants whom they found here, seemed, from their manners and appearance, to be descended from the Tartars in the most northern regions of Asia, and probably found their way through the country of Corea. They lived chiefly by fishing and hunting, and wore scarcely any covering. They are represented as an inoffensive, disinterested people, of great purity of manners; and social, benevolent, and sincere. They still possess part of the eastern quarter of the island, and retain all their primitive customs.

128. *Islands of Japan.*] Japan, or Nippon, Bongo, Tonfa, and Dezima, form together what has been called the empire of Japan.

The Japan, or Nippon Islands, are situated between thirty and forty-one deg. north latitude, and between one hundred and thirty and one hundred and forty-seven deg. east longitude. The air is healthy in almost every part of this empire, the soil fruitful, and highly cultivated, producing corn, rice, tea, a vast variety of fruits, timber, &c. Here are numerous herds of cattle; and the mountains afford mines of gold, silver, copper, tin, lead, and iron, and quarries of slate and marble.

There are four volcanoes in Japan, one of which is very dreadful; and in the neighbourhood of these burning mountains are several medicinal springs. Among the artificial curiosities is a famous colossus of copper, gilt: it is of a prodigious size, its thumb being fourteen inches in circumference, and the other parts in proportion.

The Japanese are very ingenious mechanics, and excel the Chinese in the various works which are common to both nations. They are very fair dealers, but, under pain of crucifixion, have expelled the Portuguese, who had made near a third part of the empire proselytes to their faith. Many of the converts suffered martyrdom with the most unshaken fortitude, and, after being harassed near forty years, thirty-seven thousand of them, attempting at length to defend themselves by arms, were all cut off in one day. The intrigues of the missionaries themselves, the jealousies of the bonzi, or priests of Japan, and the secret machinations of the Dutch adventurers, are all blamed for bringing about those cruel persecutions. The Dutch are now the only Europeans who are allowed to trade here; and even these are under the most humiliating and degrading restrictions.

The language of Japan is similar to that of China, but much more grammatical, copious, and polite: they also write in characters, but they are different from the Chinese. The bonzi, or priests, study philosophy, mathematics, &c. and teach the sciences to youth in their academies, of which they have great numbers.

The grossest idolatry prevails in Japan; and, in common with other nations

nations of the east, they believe in the metempsychosis, or transmigration of the soul.

There are two sects in this country very opposite in their practices. That of Xinto is the ancient established religion of the country; they acknowledge a Supreme Being and the immortality of the soul, but pay adoration to a great multitude of gods, saints, or *camis*; that is to say, the souls of eminent men. It is by authority of this religion that the Dairo, sovereign of the state, and high priest of the gods, from whom he claimed his descent, reigned over his subjects with despotic sway. The voluptuous sect of Xinto instituted festivals, and abandoned themselves to sensual pleasures. They had their temples in the midst of groves, where, after their formalities, they resorted to courtezans; and an order of monks directed and shared the profits arising from the prostitution.

The Budzoists, on the other hand, were austere in the extreme. The priests of this sect kept the minds of their followers in a continued state of torture, between remorse and expiations, for imaginary sins. They represent their gods as always desirous to punish, and always offended; and, with unrelenting cruelty, inflict, with their own hands, the severest tortures on the victims of superstition, their infatuated disciples.

The Japanese children are made to get by heart poems, in which the actions of their forefathers are celebrated, a contempt of life is inculcated, and suicide is set up as the most heroic of all actions.

Jesso is a large island to the north of Nippon, and tributary to it; the inhabitants of which are robust, and live by hunting and fishing.

129. *Kurile Islands, and Northern Archipelago.*] The sea which separates Japan from Kamtschatka, contains a number of islands, which are called the Kuriles. They are upwards of twenty in number, are all mountainous; and in several of them, there are volcanoes and hot springs. Here the empires of Russia and Japan meet together, the northern isles acknowledging the sovereignty of the former, the southern that of the latter, with whom they carry on some trade. The inhabitants discover much humanity and probity in their conduct, are courteous and hospitable, and shew particular respect to old age.

The Northern Archipelago consists of several groups of islands between Kamtschatka and North America. Some of them are only inhabited occasionally; and, for some months in the year, some are very thinly peopled; but others are pretty populous. The inhabitants are in general of short stature, and very strong and active.

The most perfect equality reigns among these islanders. They have neither chiefs nor superiors, neither laws nor punishments. They live together in families, and societies of several families united, which form what they call a race, who mutually help and support each other.

The inhabitants of the same island always account themselves of the same race; and each looks upon his island as a possession, the property of which is common to all the individuals of the same society. Feuds are very common among them, and more particularly when the inhabitants of one island are visited by those of the others. The men of the

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the village meet their guests beating drums, and preceded by the women, who sing and dance. At the conclusion of the dance, the hosts serve up their best provisions, and invite their guests to partake of the feasts. Hunting and fishing form a principal business of their lives; they seem cool in their tempers; but when aroused are very violent. Like the Japanese, they seem not to have an abhorrence of suicide, but sometimes put an end to their days with great apparent insensibility.

SECTION XI.

The Continental Parts of Asia, including the Tartars, Chinese, Hindoos, Persians, Arabs, Turks, &c.

Having at length completed, by desultory tracks, our view of the islands of the South Sea, and of those which are scattered along the way, from the most southern part of Africa to the place where the continents of America and Asia approach each other, in a high northern latitude, we may now make our descent, in the same ideal way, on the eastern shores of the Pacific.

130. *General View of Asia.*] The history of Asia affords an extensive and varied picture of climates and soils, of manners and men, of living creatures and natural productions. The nations who first receive the light of the morning are the Tartars on the north-east; and, in succession, the Chinese, the natives of Cochin China, Tonquin, Siam, Malacca, Pegu, and India, the Persians, and Arabians. Turks and Russians also, with the nations which are subject to them, as well as the Arabs, inhabit the western parts of Asia.

From the variety of climates through which this very large quarter extends, the soil varies from the sterility of the sandy desert and the everlastingly frozen clod, to the luxuriance of the tropical landscapes, ever clothed with the verdure of spring, and the fulness and luxuriance of summer and autumn: its inhabitants also bear every variety of tinct, from the fair complexion of Circassia to the olive and black of Indostan and Malacca. Asia has been celebrated as having been the scene of the most important transactions; as the creation, the deluge, the confusion of languages and consequent dispersion of the human race, the establishment of the Hebrews and their dispersion, and the introduction of Christianity. Asia was likewise the scene of the life of Mahomet.

The mere destroyers of the human race, the ravagers of towns, and the desolators of countries, excite terror in their day, and spread extensive ruin, which it may take ages to repair; such have been Alexander, Genghiscan, and Tamerlane; such has been, in degree, every warrior from Nimrod to the present day: but when, like Mahomet, they add also dogmas and ritual observances to the rueful deeds of arms; when they mingle superstition with the horrors, the violence

of war; when they establish the idea among a people that they are the peculiar favourites of Heaven, the orthodox, the faithful; that the other races of mankind are infidels and unbelievers, whom they may not consider as children of the same father, as brethren of the same family, the mischief they produce, baffles all description. In their own lifetime these most mighty hunters set one tribe of men against another, and the battle is continued down to the latest times; children are nursed up in the prejudices of their fathers; and hence, instead of passing along together cordially through this life, which at best is but a vale of tears, and therefore better suited to our present state of being (for who has not experienced that affliction sweetens the spirit?) by our mutual strifes and animosities, our prejudices and bigotry, we convert it into an howling wilderness; many of the endearments of domestic life, or good neighbourhood, are stifled and unknown; the peace and harmony of nations are interrupted and destroyed; and religion, pure and undefiled religion, which, to let it have its perfect work in the world, would do away the confusion of Babel, and melt down all the different nations and languages into one people and one language, into one family, with all its members mutually intelligible and agreeable to each other all over the earth, religion is driven from the societies of men, prejudice and superstition take its place, and cause, create, and multiply the evils of society.

The accounts that we have of Mahomet, inform us that he acknowledged the divine mission of Moses and of Jesus; but that their doctrines having been perverted, rejected, or corrupted, he was sent, the last and greatest prophet, into the world, with a new and more excellent law, which he was to enforce by the power of the sword; and consistently with his declaration, he enjoined the same violent means on his followers, promising to all who should lose their lives in such a service, a peculiar sort of beatitude in the world to come. Mahomet and the succeeding caliphs, spread their conquests over a great part of Africa and Asia, and also into Europe; and the doctrines of the Koran are embraced over a great part of the east at this day.

The division of the Hindoos in Asia, into different casts, is thought to have been an establishment of Brâma, the founder of the religion of the Bramins; and is another instance of the melancholy effects of superstition. These gentle and peaceful creatures, instead of mingling constantly together in the pious offices of humanity, stand aloof, the different casts from each other and from the rest of the world; and would account themselves polluted by mingling with them.

The religion of the Tartars seems to be of above 3000 years standing, is professed all over Thibet and Mongalia, is almost universal in Great and Less Bucharria, and several provinces of Tartary, and has some followers in the kingdom of Cassimere in India, and in China. It is founded on the existence of a Supreme Being, and very sublime principles; but the reverence they shew to the great Lama, or Dalay Lama, seems hardly clear of idolatry. The Lamas themselves confess they are no gods, but pretend to represent the Divinity, and to have received a power from him to decide ultimately on whatever relates to public worship. Their authority extends also to civil af-

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fairs; but these they look upon as profane and inconsistent with their dignity, and therefore leave the administration of them to others, whom they think worthy of their confidence.

Whatever has been said of the evil of superstition among the numerous nations of the east, equally applies to the professors of Christianity. These have, many of them, attempted to propagate their doctrines by fire and sword. They have different casts, under the names of church, sects, connection, society, &c. and they have generally their Lamas consecrated or ordained, from the Vatican down to the Conventicle.

131. *Nations of Tartars.*] The Scythians were celebrated, in antiquity, for being a hardy race of people, living in tents, and leading a roving life: their descendants, the Tartars, answer the same description to this very day. In bodies of some thousands, with their families, their cattle, and all they possess, they wander about in the vast solitudes of the Asiatic continent, from the confines of Europe to the great Pacific Ocean. On meeting with a situation fertile and pleasant, they pitch their tents, and continue in the place till the grass is consumed, when they again set forward in search of another inviting spot. Their principal food is horse-flesh and cheese, or dried curd, made up in little balls, which they crumble into water, and then drink or sip it up. Their jackets are made of deer-skins, with the fur outwards. Their chief employment from their infancy, is the management of their horses, hunting, and the tending of their flocks, few arts being cultivated, except the making of arms; and in the use of these, and riding, they shew uncommon address and agility, cleaving a pole at a considerable distance with an arrow, in full gallop. Hostilities often happen between the different hordes and their chiefs, and mark the life of the Tartar as a state of continual warfare. If he perceives a track, or hears a sound, as he crosses the desert, he is all upon the watch, and expects that a foe or booty is at hand; yet they are remarkably hospitable to their friends, and likewise to strangers who put themselves under their protection. Their filial affection is very great; and their women are remarkable for their modesty and fidelity, adultery being a crime scarcely ever heard of among them.

The religion of the Lamas was, in early times, adopted over a considerable part of the east. The Great Lama was formerly absolute master of all Thibet; but now possesses only a part of it: his dominions, however, reach to the borders of Bengal; and the English East India Company made a treaty with him in 1774. It has been generally imagined, that the followers of the Lama believe him to be immortal; that, in order to maintain the deception, he never appears except to a few favourites; that, when he receives the adoration of the people, it is always in a kind of tabernacle, where a dim light shews him rather faintly; that, when he dies, another priest is substituted in his stead, as nearly of the same size and figure as possible; and that, by means of these precautions, the delusion is kept up even on the very spot where the farce is acted, and much more in the minds of believers who are farther removed from it. It is true, the

great Lamas seldom shew themselves, the better to maintain that veneration they have obtained for their persons and mysteries; but they give audience to ambassadors, and admit princes who come to visit them: and if their person be seldom to be seen, except on some important occasions, or on great festivals, their picture is always in full view, being hung up over the doors of the temple at Putoli.

The circumstance that has given rise to the fable of the immortality of the Lamas, is, that it is a tenet of their faith, that the holy spirit which has animated one of these pontiffs, immediately upon his death, passes into the body of him who is duly elected to succeed him. The people of Thibet, as well as those of Hindostan, seem to have a great veneration for the cow; and also highly respect the waters of the Ganges, the source of which they believe to be in heaven.

Another religion, which is very prevalent, is that of Schamanism. The Schamanes believe in one Supreme Being, the Creator of all things; that he loves all his creatures, knows every thing, and is omnipotent; but pays no attention to the particular actions of men, who are creatures too diminutive to be able to offend him, or to do any thing that can be meritorious in his sight; that he has delegated the government of the world and the destiny of men to inferior divinities under his controul, who punish premeditated villany, fraud, and cruelty. They believe women are beings inferior to the men.

The Mongul Tartars in the east have fixed habitations, but do not make any outward shew of religion. They appear to be Deists; and have treated the notion of erecting a temple to the Supreme Being, as gross or absurd.

Various forms of idolatry prevail in different parts of Tartary: in some parts, they bow to images; and in others, to the objects which are most useful to them; as to the skins of animals, because they keep them warm.

Some of the Tartars are so superstitiously attached to certain forms in their whiskers, that they declare enmity towards others, as not observing the orthodox cut. Some, as the Cossacks, are so attached to their beard, that a Russian officer having deprived some of the troops of it, a most violent insurrection and a revolution have followed it; while others on the north-east wear scarcely any beard at all.

A people so widely dispersed over a track of country reaching from Persia and India, on the south, to the regions of the pole; and comprehending in itself a variety of climates; so uncollected as they are, and so mixed on their extreme confines with nations of very different manners, from their different situations, naturally deviate from any general description. Thus, far to the north, they dig subterraneous habitations, to screen themselves from the cold and severity of winter; and, instead of horses, they make use of rein-deer and dogs to draw them over the snows; while on the south, particularly at Astracan, they practise something of agriculture, manufactures, and commerce; they also, accordingly as they border on or commix with the Russians, the Turks, Persians, Indians, or Chinese, profess Christianity, or the doctrines of Mahomet, Zoroaster, or Brama, Fohi, Confucius, or Li Laokun.

As Tartary includes, in its extensive range, a variety of nations of different manners, languages, and religious professions, which cannot be involved in any general description, we might now pass on to the empire of China; but as the conduct of the two sexes towards each other forms an interesting part of the history of man, and of the order of society, we may just glance at what has been exhibited of this at the opposite extremities of this extensive track of the earth, before we pass the celebrated wall which separates the Tartars from the Chinese.

The Circassians, one of the Caucasian nations, lying between the Black Sea and the Caspian, are included, with several of their neighbours, under the general appellation of Cuban Tartars, by the Russians. The Koriacs, on the north of Tartary, border on the Kamtschatdales, and are in some degree tributary to the Russians. These are the people alluded to.

The women of our country, tho' vastly more fickle or unsteady, do not carry their affectation so far as those of Circassia. With them the slender waist is beauty; and reserve towards the men is decency or virtue. From their infancy they are constantly girt about the waist with a broad belt of leather, which is sewed on and continued, till by her growth it bursts open and falls off; it is then replaced by another: and this practice is successively continued till she arrives at full growth. Before marriage, the youth of both sexes see each other freely at the little rejoicings which take place on festivals. Before the ball, the young men shew their activity and address in a variety of military exercises; and the most alert have the liberty of chusing their partners; but when the business becomes serious, when a marriage actually takes place, then the utmost reserve is adopted by the female; her girdle must only be loosened, as the Gordian-knot is said to have been by the sword of Alexander: the husband must cut it with his dagger; and this custom, it is said, has been productive of fatal accidents.

In Circassia, the husband must not be permitted even to see his bride in presence of a stranger; and this reserve continues during life; tho' at the death of either of them, the surviving partner shews the most violent grief. The habitation of a Circassian is composed of two huts, because the wife and husband are not to be supposed to live together: one of them is allotted to the man, and the reception of strangers; the other to the wife, and the rest of the family; and the court which separates them is surrounded by palisades. At meals the whole family is assembled; so that here, as among the other Tartars, each village is reckoned at a certain number of kettles.

In passing along from the Circassians to the Koriacs, a people north of Kamtschatka, we have to cross the route pursued by the caravans of the Russians, on their traversing the solitudes of Tartary in their way to China, and the other nations of the east.

Among the Koriacs, the probation to which a lover must subject himself, is severe in the extreme. His first step is to wait on the relations of the object of his affections, and offer, as the phrase is, to drudge for them. It was the complaint of Jacob, when pursued by Laban, that during his servitude, on a similar occasion, in the day the drought

consumed him, and the frost by night; and his sleep departed from his eyes. The hardships to which the poor Koriac is subjected, seem to equal, or in some respects to exceed, those of the patriarch. With the latter every moment abridged the period of his sufferings, and each returning day brought him nearer his desired goal. But how severe must be the ordeal of our Tartar of the north! On his offering his services to the family, the maid is immediately enveloped in a multiplicity of garments, which conceal her to such a degree, that even her face is scarcely visible. She is not left alone for a single instant; her mother, and a number of old matrons, accompany her wherever she goes, sleep with her, and do not lose her from their sight, on any pretext whatever. It is the business of this female body-guard to keep him from touching her: if once he lays his hand on her, the barrier is destroyed. It is a continual contest between vigilance and activity; and each party acts with equal zeal and perseverance. In the mean time, he executes with earnestness and submission all the duties that the relations impose on him. He becomes, as it were; the slave of the family, he is employed in all the domestic labours of cutting wood, fetching water, providing ice, &c. The presence of his beloved, and the hopes of obtaining her, support him under his toils. If she happens to cast a single look, however indifferent, is sufficient to renew his courage, and make him forget the fatigues and drudgery of his servitude. In his leisure moments he is at liberty to see and approach her; and he endeavours to merit her affection by some sly or sudden attempt to obtain a touch of her; but the number and thickness of her garments are almost an invincible barrier. She has but to secure her face, and she is completely screened from him. Impatient at so many obstacles, he tears and pulls off this teasing dress: but if he be surprized in his rash attack, the inexorable guards rush upon him, and with kicks and blows, endeavour to beat him off, and force him to relinquish his prize. If he resists, he is dragged by the hair; or the nails of his opponents are imprinted on his face. If he be disheartened, or murmur at this cruel treatment, he is instantly dismissed, and entirely forfeits all claim to the alliance, which is considered as the most signal disgrace that can be inflicted on a Koriac lover. But difficulties only render his desires more vehement. Far from desponding at these rigorous proceedings, he considers himself as the more worthy of the felicity he has in view; and it is frequently not till after the expiration of two or three years that he obtains his end. Elate with his victory, he then flies to inform the relations of his success. The witnesses are summoned, and the young woman interrogated. Her confession is necessary, as well as some proof that she was taken by surprise, and made fruitless efforts to defend herself. Even then he is only at the place where the European begins. From that moment, freed from his labours, he makes his court without restraint, and the damsel is generally not long in yielding. Their manner of marriage is brief. As Isaac brought Rebecca into his mother Sarah's tent, and took her, and she became his wife, and he loved her,—so this maid accords her consent in the presence of the family, and nothing more is requisite to give him all the claims of a husband. But there is a feast on the occasion; and the company generally gets intoxicated. A plurality of wives is not allowed

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lowed among the Koriacs, although there have been instances of its being practised without scruple.

When a Koriac dies, his relations and neighbours assemble to pay him their last respects. They erect a funeral pile, upon which they place a portion of the wealth of the deceased, and a stock of provisions, consisting of rein-deer, fish, brandy, and whatever they conceive he will want for his great journey, and to support him in the other world. If he has been a wandering Koriac, his rein-deer conduct his body to the pile; if not a wandering Koriac, it is drawn by his dogs, or carried by his relations. The body is exhibited clothed in his best attire, and lying in a kind of coffin. There the attendants take their leave of it, and, with torches in their hands, consider it as an honour to reduce it speedily to ashes; after which they turn to drinking and smoking; and it usually terminates in a scene of intemperance. Death is, in their view, but the passage to another life; and, in quitting the world, they do not imagine that their pleasures terminate, but that other enjoyments are reserved for them. They acknowledge a Supreme Being the Creator of all things, and imagine that the sun is his throne or palace. They address no prayer to him: goodness, they say, is his essence; all the good that exists in the world proceeds from him; and it is impossible that he should do an injury. The principle of evil they consider as a malignant spirit, who divides with the Good Being the empire of nature. As the one is intent on the happiness of mankind, the other endeavours to render them unhappy. Diseases, tempests, famine, and calamities of every kind, are his work, and the instruments of his vengeance. It is to appease his wrath that they offer up, as expiatory sacrifices, various animals, newly born; as rein-deer and dogs; also the first-fruits of their hunting and fishing, and whatever they possess that is most valuable. They have no temple nor sanctuary set apart for his votaries, wherein to do him that homage which is dictated by terror. They hold that he is equally worshipped in all places, and hears the Koriac, who prays alone to him in the desert, as well as the assembled family, who conceive that they render him propitious by getting drunk in their yurt or hut; for drunkenness is considered with these people a religious practice, and the basis or end of all their solemnities, if it be not an abuse of words to call their orgies by such a name. This demon seems to be the same being with the Koutka of the Kamtschatdales, whose ministers and interpreters the chamans consider themselves. Here, as in that peninsula, the mystic language of these magicians works upon their credulity, and obtains them the veneration of the multitude. They exercise physic and surgery; and, in these exclusive functions, are supposed to be aided by inspiration rather than the light of experience. This gives them an influence over the people, which they do not fail to turn to their own account. It is upon the pretext of making an acceptable offering to the god, whose organ they are, that they appropriate to themselves whatever the inhabitants possess that is most costly and beautiful; and after their magic-ceremonies, they drink profusely of the moukamorr, an intoxicating poisonous liquor, which is extracted from a red mushroom, on account of the dearness of brandy, and other strong liquors.

The

The Koriacs have frequently contests with their neighbours, and are continually making insurrections against the Russians; and this state of war foment in them a ferocious spirit: they acquire an inflexible courage, delight in perpetual combats, and glory in a contempt of life. Superstition lends its aid to ennoble, in their eyes, this thirst of blood, by imposing a law that obliges them to conquer or to die. The more important the cause is that calls them to arms, the more greedy are they of death. Neither the boldness nor the number of their adversaries, can at all intimidate them; it is then they swear to destroy the fun. They discharge this terrible oath, by cutting the throats of their wives and children, burning all their possessions, and rushing madly into the midst of their enemies. The combat can only terminate by the total destruction of one of the parties. The vanquished never seek their safety in flight; honour forbids it; and not a Koriac will survive the slaughter of his countrymen.

Let us now quit this hardy and ferocious race of men, and take a cursory view of the people and their land whose delight is in peace. Leaving then behind us the Koriacs, the Ochotski, Yakutski, and Tungusi, the Manshurs, and the Monguls, with other hordes of Tartars in succession from the north, we, in our ideal way, at once pass the wall, and make our descent upon China.

132. *China.* This extensive empire is 2000 miles in length from north to south, and 1500 in breadth from east to west, and is divided into 16 provinces, which contain 3824 towns, many of which are immensely large; and the land, and even the water, swarm with inhabitants. From the accounts of the late embassy, it appears that the population of Tientsin alone, a sea-port in the province of Pekin, where they landed, amounted to many millions; and that their burying-ground alone, an immense plain, extended farther than the eye could reach, and appeared bounded only by the horizon. To comprehend this account, we may also suppose their sepulchre to be a flat track on the-sea shore; and we may also suppose that the Chinese, like the Brethren, or Moravians, have an objection to disturb the ashes of the dead. If any person die in the country, the dead body is not suffered to be brought into town, nor any corpse to be buried there.

When we cast our eyes around us on the nations of Europe, and regard the numbers of their inhabitants and the works which they have executed, notwithstanding the barbarous policy which has pervaded their different governments, which, in the slaughter of the youth, has deprived the fields of their tillage, and caused so often the motion of the loom and the noise of the hammer to cease; has deprived the daughters of the land of the most tender endearments of life, and given them the lamentations of the injured daughters of Jephthah, instead of the joys of the delighted parent, and the charities, the sympathies of a beloved wife; when we consider how difficult subsistence is rendered to the people, by the creation of unreal wants, the continual contrivance of new luxuries and superfluities; when we reflect, in fine, how Europe has poured forth its children to re-people the lands which its ravages had first desolated, and has established colonies

colonies and remains in cease to w inhabitants. The late e peror, fou left of each an emblem Chinese; a while the other, the ing in secu

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colonies and empires in every quarter of the globe, and that there yet remains in its towns and fields an increasing population, we shall cease to wonder at what is related of China, of the number of its inhabitants, and of the stupendous works which they have erected. The late embassy, on being shewn the palaces and gardens of the Emperor, found in almost every apartment a kind of throne, and on the left of each throne a large agate, in a beaten form, deposited there as an emblem of peace in the empire. Peace is the favourite policy of the Chinese; and to preserve it, if possible, their invariable maxim. Hence, while the other nations of the earth are mutually destroying each other, these people are enjoying the advantages of peace and multiplying in security.

They are also careful to turn their lands to the best account; and they have but few even of the most useful trees, as their fruits would rob the corn of its nourishment. There are gardens, it is true, interspersed with flowers, fine turf, shrubberies, and fountains; but however agreeable these scenes might be to an idle spectator, they seem to be concealed and removed from the public eye, as if the owners were afraid of shewing how much their amusements had encroached upon the soil that ought to be cultivated for the support of life. They have no parks or extensive forests, which are not near so serviceable to mankind by the wood they furnish, as prejudicial by preventing agriculture; and while they contribute to the diversions of the rich, by the beasts that range in them, despoil society of the means of subsistence. In China, the beauty of a country-seat consists in its being happily situated, surrounded with an agreeable variety of cultivated fields, and interspersed with trees planted irregularly, and with some heaps of a porous stone, which at a distance have the appearance of rocks or mountains.

The hills are generally cut into terraces, supported by dry walls. Here there are reservoirs, constructed with ingenuity, for the reception of rain and spring water, which they distribute over the land with great industry and skill. These heights commonly yield three crops in a year. They are first sown with a kind of radish, which produces an oil; then with cotton, and after that with potatoes. The manner of culture is by no means uniform throughout this empire, but varies according to the nature of the soil, and the difference of the climate. In the low countries, towards the south, that are much under water, they sow rice, which grows to a great size, and yields two crops in a year. In the inland parts of the country, where the situation is lofty and dry, the soil produces a species of rice, which is neither so large, so well tasted, nor so nourishing, and makes the husbandman but one return in the year for his labour. In the northern parts, the same kinds of grain are cultivated as in Europe, which grow in as great plenty, and are of as good quality as in any of our most fertile countries. From one end of China to the other, there are large quantities of vegetables, particularly in the south, where, together with fish, they supply the place of meat, which is the general food of the other provinces.

But the improvement of their lands is universally understood and attended

attended to. Upon most of the mountains, which are incapable of being cultivated for the subsistence of man, proper trees are planted for building houses or ships. Many of them contain iron, tin, and copper mines, sufficient to supply the empire. The gold mines have been neglected, or slightly worked; and the currency of that metal is supplied by the grains the people pick up in the sand of rivers and mountains. The silver specie is furnished from the mines of Honan. But one of the fundamental maxims of the government is, that of not introducing a superabundance of gold and silver, for fear of hurting industry.

The Chinese reduce the wildest parts of their country to cultivation, repel the waters of the sea, convert its watery bed into habitable country, and accomplish, for their convenience, and even for the gratification of their fancies, works which the design of Europeans does not appear in any age to have been sufficiently bold to have imagined. The sandy plains, saved from the ravages of the ocean, form at this day the provinces of Nankin and Tchekiang, which are the finest in the empire. As the Egyptians checked the course of the Nile, the Chinese have repulsed, restrained, and given laws to the ocean. They have reunited to the continent tracks of land which had been disjoined by this element. Such has been the employment of these peaceable people, while the other nations of the earth, by the rage of conquest, have been destroying one another, and instead of cultivating the useful arts, been desolating the globe.

The waters also, as well as the land, exhibit the most lively prospects of population. The rivers, which communicate with each other by canals, and run under the walls of most of the towns, present the scene of floating cities, composed of prodigious numbers of boats filled with people, who live constantly upon the water, and whose sole employment is fishing. Even their seas are covered with vessels, whose masts, at a distance, appear like moving forests.

The celebrated walls of the Romans, and other nations of antiquity, appear diminutive, when compared with that which divides China from Tartary. The canal of Yunlyangho, which traverses the empire from north to south for the space of 300 leagues, connecting several rivers, from Pekin to Canton, is of such stupendous dimensions, that it is navigated by the imperial barks, which are as large as the British frigates. Among their rocks and mountains, their roads are still more astonishing: they are cut through the mountains, and are carried across the vallies by means of lofty arches and pillars. In the neighbourhood of Kingtung, the bridge of chains, hung over a frightful valley, connects two high mountains. This romantic and airy passage is, as its name imports, formed of chains. The chains are of iron, twenty-one in number, stretched across from the opposite hills and connected together, so as to form a passable road. Some of their mountains are formed, with great labour and address, into various shapes, so as to resemble horses, birds, &c. and on their summits there are temples, monasteries, and other remarkable structures.

With this diligent people, every day in the year is devoted to labour, except the first, which is employed in paying and receiving visits among relations; and the last, which is sacred to the memory of their ancestor,

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ancestors, of whom they keep little images and tablets, with their names inscribed on them, and before these they burn incense; yet, notwithstanding this idolatry, the Chinese consider the practice of the social virtues, and whatever unites and civilizes mankind as religion. They are happier in the thoughts of having civilized their conquerors, and the wandering and cantoned tribes who have attached themselves to them, than they could have been in that of having destroyed their invaders.

The generosity of two of their Emperors is much celebrated, who, preferring the interests of the state to those of their family, kept their own children from the throne, to make room for men taken from the plough. In imitation of those royal husbandmen, the Emperor annually descends from the pomp of the throne, among surrounding multitudes, and, in honour of agriculture, breaks up the ground with a plough, the Empress preparing with her own hands a rural repast. In a little time he repairs again to the field to sow the seed. This is a time of great joy throughout the land. The example of the prince is followed in all the provinces; the viceroys, at these seasons, exhibiting the same spectacle to the people. The law, which obliges the prince to shew this token of respect to the profession of husbandmen, has a tendency to promote the advantage of agriculture. The deference paid by the sovereign to public opinions, contributes to perpetuate them: and the influence of opinion is the principal spring that actuates the political machine.

This influence is preserved in China by conferring honours on all husbandmen who excel in the cultivation of the ground. When any useful discovery is made, the author of it is called to court, to communicate it to the prince; and is sent by the government into the provinces, to instruct them in his method.

In most of the states of Europe, one class of men assume, from their infancy, a pre-eminence independent of their moral character. The attention paid them from the earliest age, gives them the idea that they are formed to command. That strikingly observable apathy, that marked insensibility and vacancy of countenance which sometimes military officers have the ingenuity and address to put on when listening to private soldiers and inferior officers, is sometimes to be observed in these. They seem to consider themselves as a distinct species; and the multitude looks up to them with a reverence, and adopts a language and a conduct which keep up the illusion.

In China, nobility does not descend by hereditary right; it is a mere personal reward bestowed on merit. The figure any citizen makes, begins and ends with himself; and persons raised to the highest employment in the empire, are often chosen out of families who are solely employed in the cultivation of land.

These encouragements which belong to their manners, are further seconded by the best political institutions. Whatever is in its nature incapable of being divided, as the sea, rivers, canals, &c. is enjoyed in common, and is the property of no individual. Every one has the liberty of going upon the water, fishing, and hunting. In consequence of this equality, the Chinese are enabled to establish an uniform system of education, and to inculcate correspondent principles. It is no difficult task to persuade men who are upon an equal footing by birth, that they

they are all brethren : an opinion which gives them advantages which they could not experience, if a contrary idea prevailed.

Instead of those frivolous distinctions which are allotted to birth in other countries, the Chinese substitute real ones, founded entirely on personal merit. A set of wise and intelligent men, who are honoured with the title of the Learned Mandarins, devote themselves to the study of all sciences necessary to qualify them for the administration of public affairs. None can be admitted into this society who are not recommended by their talents ; for riches give no claim to this honour. The mandarins are at their option to fix upon proper persons to associate with them ; and they never chuse any one without a previous and strict examination.

The empire of China is said to have lasted through a successive series of four thousand years. Fohi, the founder of it, is supposed to have been Noah ; and the people, to this day, consider their Emperor as their common father, and pay the greatest submission to him. There are different classes of mandarins ; and out of these the Emperor elects ministers, magistrates, governors of provinces, and officers of every denomination, who are called to any employment in the state. No dignity is hereditary except that of the crown ; and that does not always devolve to the eldest son ; but to him whom the Emperor and the council of mandarins judge most worthy : even to a person of a different family. In China there is no set of men to form or manage a faction, as the mandarins have no rich and powerful family connections ; and they are trained up in a way of thinking that inspires humanity, the love of order, beneficence, and respect for the laws.

Superstition, which has made such dreadful havock in the other parts of the earth, seems to have caused less disorder in society here than in Europe, because it is not permitted to mingle with the civil institutes. Their public worship seems to be industry, or the love of labour ; and that labour, which is held in the greatest veneration, is agriculture. The Emperor is a sort of pontiff, and fulfils his office in becoming plowman. It is true, he sometimes dictates on the subject of religion ; but this seems rather an expression of his opinion than a requisition of observance from the people. Thus, the Chinese expressing the term Heaven as the name of the Supreme Being, a mode adopted also by many Christians, the Emperor Changchi, in an edict published in 1710, says, it is not to the visible and material heaven that we offer our sacrifices, but to the Lord of heaven. Superstition does not appear, at first view, to have made such havoc among this peaceable race as it has done in our quarter of the world, where the people are more barbarous and fierce : they have not there had the cruelty or absurdity to prepare the rack, the gibbet, or the blazing pile, for the chastisement and correction of unbelief ; yet there are evils in China, most atrocious evils, which perhaps may be really traced back to this malady of the human mind. The convents of the Bonzes contain little less than a million of persons devoted to celibacy. May it not be owing to this circumstance that polygamy, so contrary to reason and the spirit of society, is universally practised ? and as it

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strikes us, in the contemplation of the human race, as one of the strongest marks of the continued care of Providence, or one of the most incomprehensible of the established laws in creation, that the sexes are kept up nearly equal in all places and in every age, when the order of things is not disturbed through the prejudices or passions of mankind—may it not happen, through the establishment of polygamy, that female children are more numerous than the males? Parents in China, who cannot support their female children, expose them on the roads; and are allowed to cast them in the rivers; on which occasions they fasten a gourd to the child, that it may float on the water: and there are often compassionate people, who are moved by the cries of the children, to save them from death. Again, if celibacy be respected in adults, may it not arise from a superstitious attachment in parents to this violation of nature, that several of the children suffer the most shameful mutilations. How afflictive is the consideration, that we can hardly cast our eyes on any part of the earth, but the prospect is deformed by superstition! The evils flowing immediately or remotely from this infirmity of the human mind, are incalculable, and have a permanency which often mocks the most zealous attempts of the most enlightened reformist, because we none of us sincerely believe that we are superstitious.

The Chinese, on their first acquaintance with the Europeans, expressed the greatest astonishment on finding them acquainted with arts and sciences, and on their being informed that there were cities and houses in Europe. How is it possible, exclaimed they, that a people so remote from us, should have any knowledge or capacity? They have never read our books; they were never modelled by our laws; and yet they speak, write, and reason as we do!—Had the Chinese but read our books; the accounts of the revolutions with which Europe has been almost unceasingly distracted; had they studied the vexatious laws with which society is continually disturbed; had they been informed of the vengeance which is exercised by man upon his fellow, with the authority of law; how delinquents are strangled even for trifling offences; how the instruments of death, and even the dead bodies of the criminals are exposed to public view,—how would they have shuddered! what self-gratulation would they have felt, that it was not their lot to live among so barbarous a people! that it was their happiness to inherit the religion, the maxims, the gentle spirit of Confucius!

The Chinese have a greater number of precepts relating to the most common actions, than any other people in the world. Their code of politeness is very voluminous; the poorest citizen is instructed, and observes it with the same exactness as the mandarins and the court. The laws in this code, like all the rest, are formed with a view of keeping up the opinion that China is but one great family, and of promoting that regard and mutual affection in the citizens which is due to each other as brethren. Their prisoners are confined in neat and commodious apartments, where they are well taken care of till the moment when they suffer. The penalties inflicted for crimes are moderate; and virtue is distinguished by marks of honour.

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The spirit of patriotism is stronger, perhaps, and more active among the Chinese, than with any other nation. It is common to see them voluntarily contributing their labour to repair the public roads; the rich build places of shelter upon them for the use of travellers; and others plant trees there.

There is a vast number of large public libraries in China; and in every city there are colleges and observatories. The Romish missionaries have assisted them in regulating their calendar; and from them much of their mathematical knowledge is derived. But the spirit of enquiry or invention is very much damped, by their excessive veneration for antiquity, which makes them the slaves of whatever is established, and gives them an insipidity or apathy very different from the active and restless spirits of the Europeans.

The most deformed part of this picture of the Chinese, applies to the inhabitants, as they appear in the sea ports and great towns; there they are knavish, cowardly, and avaricious; but in the other parts of the empire, particularly in the country, their manners are more domestic, social, and patriotic: it would be difficult to point out a more virtuous humane, and intelligent people.

Marriage generally takes place in China without the parties seeing each other, and frequently when they are yet children, the contract or treaty being formed by the parents. Though honours or compliments are strictly paid among this ceremonious people to the women, to each according to her rank, they are seldom entrusted with property, from the fear that mercenary men might seek them for wives on the sordid motives of interest and avarice.

With the women of China a small foot is accounted a great beauty; and no pains are spared to produce this deformity. Their feet are confined or swathed from their infancy, so that when they grow up, they walk with a more tottering gait than the women of our country when enduring the muscular distortion produced by high-heeled shoes; and, under the name of accomplishment or education, they are also more artificialized in their deportment and dispositions. They are instructed in music, the modes of behaviour, and the ceremonial punctilios of the country. A failure in the least circumstance of the last, as in the number of bows, to those called superiors, or in the manner of making them, would infallibly stamp the character of ignorance on the person so failing. They are taught also a bashfulness and modesty of behaviour not to be met with in any other country. The men wrap themselves closely up in their garments, and reckon it indecent to discover any more of their arms and legs than is necessary; and the women, still more closely wrapped up, never discover a naked hand, even to their nearest relations, if they can possibly avoid it. Every part of their dress, every part of their behaviour, every look and every action, corresponds with this reserve; and the men, delighted with so engaging a demeanour, behave to them in a reciprocal manner.

133. *India beyond the Ganges.*] The countries south of China, forming what is called the Farther Peninsula of India, are Cochin-China, Tonquin, Siam, Malacca, Pegu, &c. Of these we may just make a

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Loas, Cambodia, and Chiampa, as well as some other smaller kingdoms, are said to be tributary to Cochin China. It appears that a prince of Tonquin, with his adherents, who had fled from the sovereign of that country, crossed, a few centuries ago, the river which serves as a barrier between Tonquin and Cochin China. The scattered inhabitants, whom they found wandering about here, without any society or form of government, or any laws but that mutual interest which prompted them not to injure one another, soon retired; and the colonists availed themselves of the advantages which this fertile country, and the well supplied rivers and sea afforded them. Their chief cultivated with them the land in which they had all taken refuge; he never received of them any thing, except an annual and voluntary contribution, for the defence of the nation, against the tyrant of Tonquin, who, for a long time pursued them beyond the river which separated them from him; and the women, continually engaged in the duties of domestic life, imbibed and infused into their partners, a mild and humane disposition.

They have neither robbers nor beggars. Every one is at liberty to live at his own house, or that of his neighbour's. A traveller freely enters a house, in any village, sits down to table, eats and drinks without being invited or asked any questions, and then goes away without acknowledging the civility. He is a man, and therefore a friend and relation of the family: if he were a foreigner, he would excite more curiosity, but would be equally welcome.

The primitive contract between the chief and his adherents, has of late been infringed on. The reciprocal and solemn engagement between the king and people, is still renewed every year, as in the face of Heaven and earth, in a general assembly of the whole nation, holden in an open field, where the oldest man presides, and the king only assists as a private person. He still honours and protects agriculture; but does not, like his predecessors, set the example of labour to his subjects. When he speaks of them, he still says, they are my children: but they are no longer so. His courtiers have styled themselves his slaves, and have given him the pompous and sacrilegious title of King of Heaven. He has despised the homely roof of his ancestors, and built a palace. Its circumference has been marked out, and is a league in extent; and thousands of cannon planted round its walls, make it formidable to the people. The discovery of gold has brought on that of taxation. Contributions are no longer voluntary, but supplies are extorted. Designing men go to the king's palace, and craftily obtain the privilege of plundering the provinces. With gold they at once purchase a right of committing crimes and the privilege of impunity: they bribe the courtiers, elude the vigilance of the magistrates, and oppress the husbandmen. The traveller already sees, as he passes along, fallow grounds, and whole villages forsaken by its inhabitants; and, without a reformation, its roads seem likely to be deserted by navigators. The greatest part of the trade of this country and its dependencies is at present carried on by the Chinese.

Tonquin is one of the finest and most considerable kingdoms of the east, as well on account of the number of inhabitants, as of the riches it contains, and the trade it carries on. The people are idolatrous; but the precepts and writings of Confucius are held in greater veneration here than even in China. But the people do not shew that respect for parents, that love for the prince, those reciprocal affections, nor those social virtues which are met with in China; nor have they the same good order, police, industry, or activity. In hard times, the men will sell their wives and children, to buy rice for themselves; they will even stake them when every thing else is gone, as gaming, which they are very much addicted to. Notwithstanding the richness of their raw materials, and their ingenuity in manufacturing them, they devote themselves to excessive indolence. In Tonquin there is a continual struggle between the eunuchs (those myrmidons of the monarch) who govern, and the people, who impatiently bear the yoke; and in consequence of these dissensions, every thing languishes and tends to ruin.

The kingdom of Siam is one of the finest countries in the world. Though divided by a ridge of mountains, which is continued till it meets with the rocks of Tartary, it is so prodigiously fruitful, that many of its cultivated lands yield two hundred fold; and in some parts crops are spontaneously produced. There is, perhaps, no country where fruits grow in such plenty and variety, or are so wholesome, as in this delightful spot. Some are peculiar to the country; and those which are equally the produce of other countries, have a much finer smell, and are much higher flavoured than in any other part of the world. The earth, always covered with these treasures, which are constantly springing up afresh, also conceals, under a very thin surface, mines of gold, copper, loadstone, iron, lead, and calin, a species of tin, which is highly valued throughout Asia.

All these advantages are rendered useless by the greatest tyranny. A prince, corrupted by his power, and enfeebled by his voluptuousness, immured in his seraglio, oppresses his people by his caprices, or suffers them to be oppressed by his indolence. At Siam, all the people are slaves: they are registered at the age of sixteen; and every one, on the first summons, must repair to the post assigned him, upon pain of being put in irons, or condemned to the bastinado. No Siamese is advanced to any eminent post, but he is allowed a certain number of men, who are at his disposal; so that the salaries granted to great officers are well paid at the court of Siam, because they are not paid in money, but in men, who cost the prince nothing.

In a country where all the men must work for the government during six months in the year, without being paid or subsisted, and the other six, to earn a maintenance for the whole year,—in such a country the very lands must feel the effects of tyranny; and consequently there is no property. The delicious fruits that enrich the gardens of the monarch and the nobles, are not suffered to ripen in those of private men. If the soldier who is sent out to examine the orchards, discovers some tree laden with choice fruits, they never fail to mark it for the tyrant's table, or that of his ministers. The owner becomes the

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The men are not only slaves to men, but to the very beasts. The king of Siam keeps a great number of elephants. Those of his palace are taken care of, and have extraordinary honours paid them: the meanest have fifteen slaves to attend them, who are constantly employed in cutting hay, and gathering bananas and sugar-canes for them. The king takes so much pride in these creatures, which are of no real use, that he estimates his power rather by their numbers than by that of provinces. Under pretence of feeding these animals well, their attendants will drive them into gardens and cultivated lands, that they may trample upon them, unless the owners will purchase an exemption from these hardships by continual presents. No man must dare to inclose his field against the king's elephants; many of whom are decorated with honourable titles, and advanced to the highest dignities in the state.

Such various exertions of tyranny make the Siamese desert their native country, though they look upon it as the best upon earth. Most of them fly, from apprehension, into the forests, where they lead a savage life, infinitely preferable to that of society corrupted by despotism. So great is this desertion, that from the port of Mengui to Juthia, the capital of the empire, one may travel for a week together without meeting with the least sign of population, through an immense extent of country, well watered, the soil of which is excellent, and still bears the marks of former culture. This fine country is now over-run with tigers.

The trade here was formerly immense. In the beginning of the sixteenth century, a great number of ships came into their roads every year; but the tyranny which prevailed soon after, successively destroyed the mines, the manufactures, and agriculture. All the foreign merchants, and even those of the nation, were involved in the same ruin; and the state fell into confusion, under the dominion of a despotic tyrant.

Missionaries from the church of Rome had preached their doctrines here, and had gained the love of the people by their conduct. Plain, good-natured, and humane men, without intrigue or avarice, they gave no jealousy to the government nor the people; but the later priests, of the order of the Jesuits, abused the favour they enjoyed at court, and drew upon themselves the hatred of the people. This odium was transferred from them to their religion. They built churches before there were any Christians to frequent them. They founded monasteries; and by these proceedings gave offence to the people, and to the Talapoins, or Siamese monks. Some of the Talapoins lead a solitary life, and others are busy intriguing men. They preach to the people the doctrines and precepts of Sommona Kodom. That lawgiver of the Siamese was long honoured as a sage, and has since been revered as a god, or as an emanation of the Deity, a son of God. A variety of marvellous stories are told of this man; as, that he lived upon one grain of rice a-day; that he pulled out one of his

eyes to give to a poor man, having nothing else to bestow on him; that at another time he gave away his wife; that he commanded the stars, the rivers, and mountains; but that he had a brother, who frequently opposed his designs for the good of mankind; and that God avenged him, and crucified that brother. This fable prejudiced the Siamese against the doctrines of the Christians, who represented their Saviour as enduring that death which had been inflicted on the malicious brother of Sommona Kodom.

Malacca is the southern part of the farther peninsula of India. From its being nearly surrounded by the sea, its climate is mild and healthy. The soil pours forth an abundance of delicious fruits, the trees wear an everlasting verdure, and the flowers bloom in a perpetual succession: the most delicate and fragrant odours, breathed from aromatic plants, perfume the air; and the fervour of the torrid zone is allayed by refreshing gales and cooling streams.

Such is the description of the delightful regions inhabited by the Malays; but so baneful has been the influence of a tyrannical government, that the inhabitants of this delightful country have become remarkable for the ferocity of their manners. The feudal system, which was first planned among the rocks and woods of the north, has extended itself here; and the despotism of a sultan seems to extend its oppressive influence to multitudes, by being divided among a number of powerful vassals. This enslaved nation is under the dominion of an arbitrary prince, or rather of twenty tyrants, his representatives. The masters let out their services, or rather those of their dependents, for hire, to the best bidder, regardless of the loss that agriculture would sustain for want of hands. They preferred a wandering and adventurous life, either by sea or land, to industry. They committed depredations, they conquered, or colonized, many of the islands of the Pacific, and carried with them their laws, manners, and customs; and, what is something remarkable, and seems to show that they have once been a more gentle race, they carried with them the softest language in all Asia. The Malayan tongue is esteemed the finest and purest in all the Indies. It is spoken there as commonly as the French is in Europe; and dialects of it are to be heard in the most remote islands of the east.

The wars with which the earth has been heretofore distracted, have very commonly been no other than contests of the people for change of their masters, and of different nations for extension of territories. Those which have recently, and which at present desolate our quarter of the globe, seem of a different kind. We have seen, in our day, astonishing revolutions in the manners of a whole nation; and can more readily comprehend how similar changes may have taken place in countries more remote from us, and in ages that are past.

From the softness of the Malayan tongue, it seems most probable that they once possessed a humane and gentle character. An oppressive system of government gave rise to an universal turbulence of manners. When the Europeans first arrived in the Indies, the passion of the Malays for plunder had at length given away to advantages of

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a more certain nature than the precarious and doubtful success of piratical expeditions. The harbour of Malacca was constantly crowded with vessels either from Japan, China, the Philippine and Molucca islands, and the adjacent part of the eastern coast; or from Bengal, Coromandel, Malabar, Persia, Arabia, and Africa. The Portuguese, desirous of having a share in the general commerce of Asia, at first appeared at Malacca in the character of merchants; but their usurpations in India rendered their designs much suspected; and the Arabians circulated reports so much to their disadvantage, that measures were taken to destroy them. Several of them were killed, some were thrown into prison, and others escaping to their ships, retreated to the Malabar coast. They soon returned with force, attacked, and carried, after several bloody and obstinate engagements, the city of Malacca. Here they found immense treasures, vast magazines, and whatever could contribute to the elegancies and pleasures of life. The inhabitants, who professed Mahometanism, and were unwilling to submit to their new masters, either retired into the inland parts, or dispersed themselves along the coast. Having lost the spirit of commerce, they relapsed into all the excesses of their former violent character. These people never go without a poniard, which they call *crid*; and nothing is more to be dreaded than such men armed with such an instrument. When they get on board a vessel, they stab the crew at the time when no harm is suspected. Since their treachery has been known, all Europeans take care never to employ a Malayan sailor; but these barbarians, animated by an unaccountable resolution to kill or be killed, come in boats, with thirty men, to board vessels, and sometimes succeed in carrying them off. If they be repulsed, they have the cruel satisfaction, at least, of having imbrued their hands in blood. This debasement of the Malays, begun by the Portuguese, has been continued by the tyranny of the Dutch, who have a factory at Malacca, which they took from the Portuguese.

The kingdoms of Pegu, Ava, Aracan, and Lagos, lie north of Siam, and all produce, as well as it, the varnish-tree. In them are also found the finest rubies, and some gold-dust, with the other riches of the east.

The government of Pegu is arbitrary; but the king has not often abused his power. In other respects this country and Siam very much resemble each other. In the low parts the houses are built up on posts, and, at the time of inundations, communicate with each other by means of boats. The women are the principal merchants. The Talapouns, or priests, are strict observers of morality: they cultivate the ground for their subsistence, inculcate charity as the highest virtue, and affirm that religion to be the best which teaches men to do the most good both to man and beast.

134. *Hither India, Mogul's Empire, or Hindoostan.*] Though by the general name of the East Indies is commonly understood that immense track of land which lies beyond the Arabian Sea and the Persian empire; yet by Hindoostan is properly meant the country lying between the two celebrated rivers, the Indus and the Ganges, or rather

between Persia and the river Burrampooter, and terminating on the south at Cape Comorin. A ridge of high mountains, from north to south, divides this long track, and seems like a barrier to separate one season from another. The mere breadth of these mountains divides summer from winter; that is to say, the season of fine weather from the rainy; for it is well known there is no winter between the tropics. All that is meant by winter in India, is that time of the year when the clouds which the sun exhales from the sea, are driven violently by the winds against the mountains, where they break and dissolve in rain, accompanied with frequent storms. Hence torrents are formed, which rush from the hills, swell the rivers, and overflow the vallies, while dark vapours obscure the day, and spread a thick and impenetrable gloom over the deluged country.

The summer may naturally be expected to preserve its usual temperature better than in winter, in a climate so immediately under the influence of the sun: the sky, without a cloud to intercept its rays, seems to be all on fire; but the sea-breezes, which spring up in the day-time, and the land-breezes, that blow during the night, alternately alleviate the heat of the atmosphere; yet the calms that now and then intervene, stifle these refreshing gales; and the inhabitants are reduced to suffer the inconveniences of excessive drought.

The effect of the two different seasons is still more remarkably felt in the two Indian Oceans, where they are distinguished by the name of the dry and rainy monsoons. While the sea, that washes the coast of the Malabar, is agitated by storms, which the returning sun introduces with the spring, the slightest vessels sail securely along the coast of Coromandel upon a smooth surface, and require neither skill nor precaution in their pilots; but in the autumn, which, in its turn, changes the face of the elements, the western coast enjoys a perfect calm, while the eastern Indian Ocean is tossed by tempests; each experiencing, as it were, the alternatives of peace and war.

The celebrated countries of India have long engaged the attention of the philosopher and the historian, whose conjectures have assigned to their earliest inhabitants an æra of the greatest antiquity. They trace the origin of most of the sciences in the history of that country. Even before the age of Pythagoras, the Greeks travelled to India for instruction. The trade carried on by them with the oldest commercial nations, in exchange with their cloth, shews their great and early progress in their arts of industry.

In India are found the traces of a multitude of superstitious observances, arts, sports, errors, and truths, which have been adopted by almost all nations. Amidst a great variety of absurd superstitions, puerile and extravagant customs, strange ceremonies and prejudices, there may be sometimes discovered remains of sublime morality, deep philosophy, and refined policy; but when we attempt to trace the religious and civil institutions to their origin, we are lost in the mazes of antiquity: the Indians themselves are ignorant of it. They have to this day preserved customs, of which they know not the original design: the spirit of their political constitution is lost, and every branch

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of it either changed or corrupted: their religion, which was of the allegorical and moral kind, has degenerated into extravagant superstition, owing to their having realized those fictions which were intended merely as so many symbols or emblems.

From the Indus to the Ganges, the Vedam is universally received as the book that contains the principles of religion; and, throughout all Hindoostan, the laws of government, customs, and manners, make a part of religion; being all derived from Brama, whom they account a being far superior in dignity to the human race, the interpreter of the divinity, the author of their sacred books, and the great lawgiver of India.

There is some reason to believe that Brama was possessed of the sovereign authority, as his religious institutions were evidently designed to inspire the people with a profound reverence and great love for their country. It is from him they derive their religious veneration for the three capital rivers of Hindoostan, the Indus, the Christina, and the Ganges. It was he who consecrated the animal that is most serviceable in the cultivation of the land, as well as the cow, whose milk is so wholesome a nourishment in hot countries. To him they ascribe the division of the people into tribes, or casts.

The Shastah is looked upon by some as a commentary on the Vedam; and by others as an original work. This book teaches that the Eternal Being, absorbed in the contemplation of his own essence, formed the resolution of creating beings who might partake of his glory. He spoke, and angels rose into existence; they sang in concert the praises of their Creator, and harmony reigned in the celestial regions, when two of those spirits, having revolted, drew a religion after them. The Supreme Being drove them into a place of torment; from which they were released at the intercession of the faithful angels, upon conditions which at once inspired them with joy and terror. The rebels were sentenced, under different forms, to undergo punishments in the lowest of the fifteen planets, in proportion to the enormity of their first offence. Accordingly, each angel underwent eighty-seven transmigrations upon earth, before he animated the body of a cow, which holds the highest rank among the animal tribes. These different transmigrations are considered as so many stages of expiation, preparatory to a state of probation, which commences as soon as the angel transmigrates from the body of the cow into a human body. In this situation the Creator enlarges his intellectual faculties, and constitutes him a free agent; and his good or bad conduct hastens or retards the time of his pardon. The good are, at their death reunited to the Supreme Being, and the wicked began anew the period of their expiation. Hence it appears, from this tradition of the Shastah, that they consider the metempsychosis as an actual punishment; and the souls which animate the generality of the brute creation, as nothing more than wicked spirits.

The Indians seldom admit strangers to their worship; and never without the greatest reluctance. This was, in some measure, the spirit

of the ancient superstition, as it appears among the Egyptians, the Jews, the Greeks, and the Romans : and though it has made fewer ravages than the zeal for making converts, it prevents the intercourse of society, and raises an additional barrier between one people and another.

The Gentoos, or Hindoos, are of a mild, humane disposition, and are almost strangers to the passions that prevail among us. What motive of ambition can there be among men who are destined to continue always in the same state ? They love peaceable employments and an indolent life ; and often quote this passage of one of their favourite authors : ' It is better to sit still than to walk ; better to sleep than awake : but death is best of all.' Notwithstanding the numbers of savage banditti, and other strangers, whom the desire of gain has invited to India, they have not adopted the manners, the laws, or the religion of their masters.

The nation is divided into four classes ; the Bramins, the soldiery, husbandmen, and mechanics ; and these classes have their subdivisions. There are several orders of Bramins : those who mix in society are, for the most part, very corrupt in their morals ; they believe that the water of the Ganges will wash away all their crimes ; and, as they are not subject to any civil jurisdiction, live, it is said, without restraint or virtue, excepting that character of compassion and charity which is so commonly found in the climate of India. The others, who live abstracted from the world, abandon themselves to laziness, superstition, and the dreams of metaphysics ; with all the subtleties of which they are well acquainted. The Greek philosophers are supposed to have derived this artificial and abstract sort of science from India ; and, from their writings, the moderns have adopted similar subtleties.

Such are the descendants of the ancient Brachmans, so celebrated in antiquity. The Greeks ascribe to them the doctrine of the immortality of the soul, and certain notions concerning the nature of the Supreme Being, and future rewards and punishments. To these doctrines the Brachmans added a number of religious observances, which were adopted in the Pythagorean school ; such as fasting, prayer, silence, and contemplation.

The military class consists of the Rajas on the coast of Coromandel and the Nairs on the coast of Malabar. There are likewise whole nations, the Canarins and the Marattas for instance, who assume the trade of slaughter, either because they are of some tribes, originally soldiers, or because times and circumstances have introduced a change in their primitive institutions. The name of Rajapouts signifies descendants of the Rajas. The English East India Company employs several battalions of them, and call them Sepoys. The sailors are called Lascars.

The third class of Gentoos consists entirely of husbandmen ; and there are few countries where this set of men have a better title to the gratitude of their fellow-citizens. They are diligent and laborious, and perfectly acquainted with the art of distributing their rivulets, and of making the burning soil they inhabit as fertile as possible. This class,

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class, which was formerly much respected, was free from tyranny and the ravages of war: never were the husbandmen obliged to bear arms; their lands and their labours were held equally sacred; they ploughed their fields within view of contending armies, who suffered them to pursue their peaceful toil without molestation; their corn was never set on fire, nor their trees cut down; the most furious armies would have accounted it impious to commit such enormities.

The tribe of mechanics is branched out into as many subdivisions as there are trades, no one being allowed to relinquish the profession of his parents; for which reason industry and vassalage have ever gone hand in hand, and carried the arts to as high perfection as they can attain without taste or imagination, which are seldom unfolded in so insipid and unvaried a tenor of life.

Besides these tribes, there is a fifth, which is the outcast of all the rest; the members of it are employed in what are called the lowest offices of society. They bury the dead, carry away dirt, and live upon the flesh of animals that die natural deaths: they are held in such abhorrence, that if any of them dare to touch any person belonging to the other classes, he has a right to kill him on the spot. They are called *Parias*, *Hallachores*, or *Harri*; and are held in utter detestation by all the other tribes, who, if excommunicated, fall into this cast; and they and their posterity are for ever shut out from the society of the rest of the nation. Thus we see, that whatever there is deformed in the picture of civil society in Europe, is here marked with the most forcible colouring. If we cast our eyes over our public walks, or even along our streets, where business frequently obliges people in different situations of life to mingle together, we shall find that associations are generally regulated by the texture of the drapery in the clothes of the company, rather than by congeniality of mind. In forming the closest connections in life, the people mostly fit themselves with partners by the consideration of their possessions: the poor are married to the poor, the rich to the rich; and so corrupted are we by our education, *i. e.* the example of general manners, that the expression of *well or ill married*, generally gives us the idea of the possessions, the family, the accompaniments of the person, rather than of the partner's own self. It is curious to observe the different manners of these people, according to their different habits and situations: the modest, unassuming, and even embarrassed deportment of the poor towards the rich; the loftiness of the latter in certain situations, for the poor have their walk as well as the rich; and each class verifies in its conduct the truth of the old observation, "Every cock crows on its own dunghill." If the poor feel embarrassed in the apartments, or on the carpets of the rich, the latter are ashamed to speak otherwise than softly in the streets; where the poor make noise enough. In our country, the distinction of rank is carried into the place of worship. The casts of the *Gentoos* are separated from each other by insurmountable barriers; they are not allowed to intermarry, live, or eat together: whoever transgresses this rule is banished, as a disgrace to his tribe. But it is quite otherwise when they go in pilgrimage to the temple

temple of Jangranat, or the Supreme Being. At these seasons the Brahmins, the Raja, or Nair, the husbandmen and mechanic, carry their offerings, and eat and drink promiscuously; they are there admonished that the distinctions of birth are of human institution; and that all men are brethren, and children of the same God. Alas! what avail these specious professions? of what use are these evangelical doctrines anywhere, while everywhere we see and feel, and, in the expressive language of conduct, declare that in our hearts we disbelieve them!

In the pagodas of the Gentoos there are cisterns of water for the purification of the people, who observe these superstitious ceremonies; they admit no light but at the entrance, which always fronts the east. This defect is supplied by tapers; and the idol is placed in the centre of the building, so that the Parias, who are not admitted into the temple, may have a sight of it through the gates. This prohibition seems like the last and grossest subversion of social laws that could enter the heart of man; but the Paria may console himself from the writings of some of their own poets,—‘He causeth his sun to shine on the tent of the outcast.’—In Malabar there is a race of men who have not even this consolation. The Poulichees inhabit the forests, and are not permitted to build huts, but are obliged to make a kind of nest upon the trees. When they are pressed by hunger, they howl like wild beasts, to excite the compassion of passers. The most charitable among the Indians deposit rice, or other food, at the foot of a tree, and retire, with all possible haste, to give the injured wretch an opportunity of taking it without meeting with his benefactor, who would think himself polluted by coming near him:—a squeamishness which the most pampered of the people in our country have not arrived at towards the poulichees, or beggars, along our own highways and hedges.

Though the Brahmins in India, like the tribe of Levi among the Hebrews, have the exclusive privilege of exercising the priesthood, there are men in India who share with them the veneration of the people. They are called Faquirs, and surpass the Bramins in austerities. Men of all the tribes, or casts, are permitted to follow this manner of life; and their mortifications exceed all that is practised by the monks of Europe. Some of them wallow in the dirt, others accustom themselves to painful postures; and, contrary to the other Gentoos, who with superstitious exactness observe washings or purifications, never cleanse their bodies, nor comb their hair. There are Faquirs in other parts of Asia, as well as in Hindoostan; and also in Africa. They wear no clothes, considering them only as proper appendages to sinners; while they, professing themselves free from every stain of pollution, have no shame to cover. It has long been an opinion established in India, that there is not in nature so powerful a remedy against barrenness as the prayers of these idle and pretended devotees: they get admittance to the apartments of weak and enthusiastic women, leaving their slipper or staff at the door, which is accounted so sacred a symbol, that it effectually prevents any one from violating the secrecy of their actions.

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Brahma prescribed different kinds of food for the respective tribes of Gentoos. The military, and some other ranks, were permitted to eat venison and mutton: fish was allowed to some husbandmen and mechanics; others lived upon milk and vegetables. None of the Bramins ate any thing that had life. Upon the whole, these people are extremely sober; but their abstinence varies in proportion to the greater or less labour required in their professions.

They are married in childhood, or espoused; but live with their parents till arrived at maturity. The wives are, in general, very faithful, and some have the privilege of having several wives. Those of the Bramins have been in the practice of burning themselves on the same pile with the dead bodies of their husbands; and others have followed their example. Since the Moguls became masters of Hindoostan, these horrible spectacles have become much less frequent, as it costs a sum too considerable for any but the rich to obtain a license for that purpose. But this obstacle has sometimes made their inclinations to this frightful but honoured catastrophe, the stronger; and some women have been known to devote themselves for several years to the lowest and most laborious employments, in order to raise money to defray the expences of this romantic suicide, which they consider as a release from the prison of the body, and from all farther transmigrations, and as the undoubted commencement of the most certain and perfect happiness; joining them for ever to the happy spirits of their departed husbands, in a state of the most perfect purification.

If we may credit the most ancient tradition, the fertile plains of Hindoostan tempted the first conquerors or ravagers of the world.—Bacchus, Hercules, Sesostris, and Darius, are supposed to have carried their arms into that rich portion of the globe, already civilized, and very populous, while other parts of the earth were desert and savage. The progress of Alexander in this country was rapid; but he was cut off by death in the midst of his triumphs. About the beginning of the eighth century, the Arabs overran India; and since that time they have fallen successively under different tribes of Mahometans, Tartars, and Christians.

Tamerlane, who came from Great Tartary, and was already famous for his cruelties and his victories, advanced to the north side of Hindoostan, at the end of the fourteenth century, with an army inured to all the hardships of war. He secured the northern provinces to himself, and abandoned the plunder of the southern ones to his lieutenants. By the union of all his conquests he found himself master of all the immense space that extends from the delicious coast of Smyrna to the delightful borders of the Ganges. After his death violent contests arose, and his posterity were deprived of his rich spoils. Babar, the sixth descendant of one of his children, a young prince, brought up in sloth and luxury, reigned in Samarcand, where his ancestor had ended his days. The Usbec Tartars dethroned him, and constrained him

to take refuge in the Cabulistan, the governor of which received him kindly, and supplied him with troops. The fugitive monarch reduced Hindooistan, already torn in pieces by the incessant wars of the Indians and Patans, and laid the foundation of the Mogul empire.

The Mogul emperors long enjoyed the superstitious idea the nation had conceived of their character being sacred. That outward pomp, which captivates the people more than justice, because men are struck with what dazzle their eyes, more than with what is beneficial to them; the richness and splendor of the prince's court; the grandeur that surrounded him in his travels; all this kept up in the minds of the people those prejudices of servile ignorance which trembles before the idol it has raised. The various accounts that have been transmitted to us, of the luxury of the most brilliant courts in the world, are not to be compared to the ostentatious pomp of the Great Mogul when he appears in public. The elephants, those immense animals that are unknown in our climates, give an Asiatic monarch an air of grandeur, of which we have no conception. The people fall prostrate before their majestic sovereign, who sits exalted upon a throne of gold, glittering with precious stones, mounted on the haughty animal, which proceeds slowly, and seems, like the flatterers of kings, proud in the office of presenting their master to the respect of the cringing multitude of slaves. But the pride of this lofty idol of the east is now humbled in the dust. After various struggles, assassinations, and wars among the descendants of Tamerlane, the empire was invaded by Nadir Shaw, or Kouli Khan, the monarch of Persia, who destroyed 200,000 of the Indians, in 1739, and carried off 231,000,000 sterling. The city of Delhi, with a small territory round it, is all that is left to the present emperor, who depends upon the protection of the English; and it is the interest of these to support him, as they find his authority to be their best legal guarantee for their possessions in India.

The descendants of the Tartars as well as of the Arabs, are Mahometans, and are called Moors; they are computed to be about 10,000,000; and the Indians about 100,000,000.

135. *Persia.*] There seems to be some similitude between the Brahmins of India and the Guebres or Gauris of Persia, who account themselves the disciples and successors of the ancient Magi, the followers of Zoroaster. They both of them held, originally, pure and simple ideas of a Supreme Being; and these, as well as those, seem to have realized or substantiated those ideas, which were originally allegorical. A place near the city of Baku, in the north of Persia, is the scene of the Guebres or Persians' devotions. The soil is impregnated with a surprising principle of inflammability, and contains several old little temples; in one of which the Guebres pretend to preserve the sacred flame of the universal fire. They stick a large hollow cane in the ground, and through this a flame ascends, resembling a lamp burning with pure

SECT. X.

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pure spirits. The Guebres are numerous, though persecuted, in Persia, and are also scattered into different parts of the east.

The political establishment of religion in Persia is Mahometanism, of the sect of Ali; on which account the Turks, who follow the succession of Omar and Abu Beker, call them heretics.

The Persian court, in antiquity, was celebrated for its pomp and grandeur. The king was absolute, and, with immense armies, often attempted to reduce Greece under his dominion. Those who approached him were required to prostrate themselves before him: and the same despotism on the part of the monarchs of the east, with the same abject submission on the part of the people, continue till this day. Moreover, since the time that Sarah called Abraham Lord, the women of Asia have been oppressed or degraded. The simple woman, in giving Hagar, her handmaid, to her husband, afforded an example to Israel in antiquity, and to Mussulmans in later times, destructive of the marriage unity. But happily, the example of the Father of the Faithful has not been followed by the disciples of Jesus.

Some of the Greek, and several of the Roman historians, in mentioning the ancient Persians, have dwelt with peculiar severity on the manner in which they treated their women. Jealous almost to distraction, they confined them with the strictest attention, and could not bear that the eye of a stranger should behold the beauty which they adored.

In the account of the dismissal of Vashti, and the adoption of Esther, the niece of Mordecai the Jew, we have an instance of a contrary conduct in the king of Persia. In all ages, and in almost every country, the women have been imposed on; and this despot appears to have been a greater enemy to the females, and consequently to mankind at large, than even Solomon. We are not informed how many injured women were delivered to the custody of the chamberlain who kept the concubines: perhaps their number did not equal, but their lot might be harder than even that of the women of the voluptuary of Jerusalem; and other acts of his life shew the abominable tyranny of the court of Persia.

When Ahasuerus, who reigned from India even unto Ethiopia, made a feast, and his heart was merry with wine, he commanded the seven chamberlains to bring Vashti the queen before him, with the crown royal, to shew the people and the princes her beauty; for she was fair to look on. But the queen refused to come; therefore the king was very wroth, and his anger burned in him. Then the king said unto the wise men, what shall we do unto queen Vashti, according to law, because she hath not performed the commandment of the king Ahasuerus by the chamberlains? And Memucan answered, before the king and the princes, Vashti, the queen hath not done wrong to the king only, but also to all the princes, and to all the people that are in all the provinces of the king Ahasuerus. For this deed of the queen shall come abroad unto all women, so that they shall despise their husbands in their eyes. If it please the king, let there go a royal commandment

mandment from him, and let it be written among the laws of the Persians and the Medes, that it be not altered, that Vashti come no more before king Ahasuerus; and let the king give her royal estate unto another that is better than she. And when the king's decree, which he shall make, shall be published throughout all his empire (for it is great) all the wives shall give to their husbands honour, both to great and small.—And the saying pleased the king and the princes: and the king did according to the word of Memucan. For he sent letters into all the king's provinces, into every province according to the writing thereof, and to every people after their language, that every man shall bear rule in his own house; and that it should be published according to the language of every people.

The monarchs of Persia placed almost the whole of their grandeur, and of their enjoyment, in the number and beauty of the women of their seraglios, which they selected from among the fairest, either taken captive in war, or born in their own dominions.

When the wrath of Ahasuerus was appeased, he remembered Vashti, and what she had done, and what was decreed against her. Then said the king's servants that ministered unto him, let there be fair young virgins sought for the king. And let the king appoint officers in all the provinces of his kingdom, that they may gather together all the fair young virgins unto Susshan the palace: and let the maiden which pleaseth the king be queen instead of Vashti. And the thing pleased the king; and he did so. And when many maidens were gathered together unto Susshan the palace, to the custody of Hegai, Esther was brought also unto the king's house, to the custody of Hegai, keeper of the women. Now when every maid's turn was come to go into King Ahasuerus, after that she had been twelve months, according to the manner of the women, for so were the days of their purifications accomplished; namely, six months with oil of myrrh, and six months with sweet odours, and with other things for the purifying of the women. Then thus came every maiden to the king: whatsoever she desired, was given her, to go with her out of the house of the women unto the king's house. In the evening she went, and on the morrow she returned into the second house of the women, to the custody of Shaashgaz the king's chamberlain, who kept the concubines: she came in unto the king no more, except the king delighted in her, and that she were called by name. And the king loved Esther above all the women, and she obtained grace and favour in his sight more than all the virgins; so that he set the royal crown upon her head, and made her queen instead of Vashti.

How different the circumstances of the governments of different countries! the despot of Persia had the choice of the virgins of an hundred and seven-and-twenty provinces.

From the barbarous policy of the laws of this country, the individuals of the royal family may be shut out from the pleasures of domestic

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domestic life: they may not marry with the people. It is in vain that they are susceptible of the tender passion of love. When this has been yielded to in opposition to cruel laws, the monarch has interfered, and attempted to dissolve the nuptial tie: his children are forced upon celibacy, whether agreeable to their inclinations or not; or they are laid under the temptation to incontinency, if they have not the virtue of themselves to enter into and abide by connubial engagements; and when their partners are chosen for them, they are sometimes yoked to those whom they never saw, and perhaps to those whom they cannot tenderly love.

In the purification of the Persian maidens for the despot to pollute, we do not discover any thing in the manner to make the poor victim disagreeable. The purification of captives among the Hebrews, appears to have been extremely disgusting. When an Israelite saw among the captives a beautiful woman, and had a desire to have her to be his wife, he was to bring her home to his house; and she was to shave her head, put off her raiment of captivity, remain in his house, and bewail her father and mother a full month; and after that he was to go in unto her, and be her husband; and if he had no delight in her, then he was to let her go whither she would; but he was not to sell her at all for money, nor to make merchandize of her.

The Persians shew great respect to old age; and are very polite and hospitable. They say, that every meal a stranger partakes of with them, brings a blessing upon the house. But the fear of chains which bind their bodies, has also enslaved their minds; and their conversation, to men of superior rank to themselves, is marked with signs of the most abject and slavish submission; while, on the contrary, they are as haughty and overbearing to those whom they account their inferiors.

Men may marry for life, or for any determined time, in Persia: the contract is witnessed by the cadi, or magistrate; and amongst thousands, it is said, there has not been one instance of their infidelity during the time agreed upon.

Law, in Persia, is exercised in a very summary way: the sentence on criminals, which is generally very severe, being always put into execution on the spot. The king calls himself Shah, or the Disposer of Kingdoms. Shah or Khan, and Sultan, which he likewise assumes, are Tartar titles. To acts of state the Persian monarch does not subscribe his name; but, instead of it, annexes the following piece of extravagance, as absurd as any of the titles assumed by the kings of Europe: "This act is given by him whom the universe obeys." At present there are different competitors for the throne of Persia; and from the commotions that have taken place at different times, the country, that was once fair and flourishing, and blooming like a garden, is despoiled and desolated.

136. *Arabia, Turkish Empire, &c.*] From the rising of the sun to the river, and from the river even to the ends of the earth, we pursue our imaginary way. The Euphrates forms a western boundary of Persia. On crossing this celebrated stream, we enter upon Arabia.

This

This extensive peninsula is divided into the Stony, Desert, and Happy Arabia.

Arabia Petrea is the most western, and the smallest of the three. It is for the most part uncultivated, and almost totally covered with rocks. In Arabia Deserta, little is to be seen but dry plains, heaps of sand, raised and dissipated by the wind, and steep mountains, never embellished with verdure.

The Arabs, settled near the Indian and the Red Sea, and those who inhabit Arabia Felix, were formerly a mild people, fond of liberty, and content with a state of independence, without dreaming of conquest. They were too much prejudiced in favour of the beauty of their sky, and of the soil that supplied their wants, almost without culture, to be tempted to extend their dominion over different countries, lying in another climate. Mahomet changed their ideas: but they retain no traces of the impressions he communicated to them. They pass their time in smoking, taking coffee, opium, and sherbet. These gratifications are preceded or followed by exquisite perfumes that are burnt before them, the smoke of which they receive in their clothes, which are slightly sprinkled with rose-water.

When Mahomet had established a new religion in his country, his followers imbibed a zeal which impelled them to conquest. They extended their dominion from the Western Ocean to China. They were at the same time apostles of their prophet, soldiers, and merchants. They attended to commerce, even in the course of their conquests. Their merchants, manufactures, and staples extended from Spain to Tonquin; and the western parts of Europe were indebted to them for the introduction of arts and sciences, and of various articles conducive to the convenience and pleasures of life.

When the power of the Caliphs began to decline, the Arabians, after the example of several nations they had subdued, threw off the yoke of those princes; and the country re-assumed by degrees its ancient form of government, as well as its primitive manners. At this era, the nation being, as formerly, divided into tribes, under the conduct of different chiefs, returned to their original character, from which enthusiasm and ambition had made them depart.

The stature of the Arabians is low, their bodies lean, and their voice slender and shrill; but they are very active, have robust constitutions, brown hair, a swarthy complexion, and black sparkling eyes. Grave and serious, they consider their long beards as marks of dignity; they speak little, use no gesture, make no pauses, nor interrupt one another in their conversation. They observe the strictest probity towards each other; but the more carefully they preserve their phlegmatic character, so much the more formidable is their resentment when once it is provoked.

The number of people who inhabit the wilder parts of Arabia, may amount to 2,000,000, which is about one-sixth part of the whole population. They are distributed into several clans, some of which

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which are more populous and considerable than others, but all independent of each other. Their government is simple: an hereditary chief, assisted by a few old men, determines all debates, and punishes the offenders. If he is hospitable, humane, and just, they revere him; if haughty, cruel, and avaricious, they assassinate him, and appoint a successor out of his own family.

These people encamp at all seasons of the year. They have no settled abode, and fix at different places, where they can be supplied with water, fruits, and pasture. They find an irresistible charm in this wandering life, and consider the sedentary Arabs in the light of slaves. They live upon the milk and flesh of their herds. Their habits, tents, cordage, and the carpets they sleep upon, are all made of the wool of their sheep, and the hair of their goats and camels. This is the employment of the women in each family; and there is not one man an artist in the whole desert. What they consume in tobacco, coffee, rice, and dates, is purchased with the butter they carry to the frontiers, and the money arising from the annual sale of 20,000 camels. These animals, so useful in the east, were formerly carried to Syria; but the most of them are now sent to Persia; the perpetual wars there having occasioned an extraordinary demand for them, and diminished their species.

These articles not being sufficient to supply the Arabs with what they wanted, they have contrived to raise a contribution on the caravans, which superstition leads to travel through their sandy regions. The most numerous of these, which goes from Damar to Mecca, procures a safe passage by the payment of 100 purses, amounting to near 7,000 pounds, to which the Grand Signior is subjected, and which, by ancient agreement, is distributed among all the hordes. The other caravans make similar terms with the hordes, through whose territories they are obliged to pass. Independent of this expedient, the Arabs inhabiting the most northern part of the desert, have had recourse to plunder. These people, so humane, faithful, and disinterested towards each other, are savage and rapacious in their transactions with foreigners. While they preserve, in their tents, the characters of beneficent and generous hosts, they commit continual depredations in the towns and villages of their neighbourhood. They are good fathers, good husbands, and good masters; but they seem to think that they have a right to consider all as enemies who do not belong to their family. They frequently carry their incursions to a great distance; and Syria, Mesopotamia, and Persia, are not uncommonly the scenes of their depredations.

The Arabs who devote themselves to plunder, train their camels, from their birth, to all the hardships and exercises they are to undergo, during the whole course of their lives. They accustom them to travel far and eat little. The animal is early inured to pass whole days without drinking, and nights without sleep. It is taught to go down upon its knees to receive its load, the weight of which is insensibly increased as its strength is improved by age, and by the habit of bearing fatigue. The Arabians qualify the camel

mel for expedition by matches; in which the horse, which is more active and nimble, runs against him, and for a while excels him in the race; but the camel tires out his rival in a long course. When the master and the camel are ready, and equipped for plunder, they set out, traverse the sandy deserts, and lie in ambush upon the confines to rob the merchant or traveller. The man ravages, massacres, and seizes the prey; and the innocent and docile creatures carry off the booty. If they be pursued, they make a precipitate retreat. The master mounts his favourite camel, drives the whole troop before him, travels 300 leagues in eight days, without unloading his camels, or allowing them more than an hour each day for rest, and a cake of dough for their subsistence. They are sometimes the whole time without drinking, unless they happen to see a spring at a little distance from the road, when they redouble their pace, run to the water with eagerness, and take as much at one draught as is sufficient to quench their present thirst, and serve them to the end of their journey.

On their fleet but docile courfers also, which seem to understand the voice of their masters, and wait at the door of their tents all day long, fully equipped and ready for mounting, they traverse the deserts and hover round the caravans, to plunder the merchants and the Mussulmans, on their pilgrimage to Mecca. Travellers and pilgrims, from different nations, led hither through motives of devotion or curiosity, are struck with terror on their approach towards the deserts. The robbers sometimes form very large bodies, headed by a captain. So lately as 1750, an host of 50,000 Arabians attacked a caravan returning from Mecca, killed about 60,000 persons, and plundered it of every thing valuable, though escorted by a Turkish army.

There are Arabs who, living in districts that afford pasture, and where the soil is proper for barley, breed the finest horses in the world. These horses are sent into different parts, to improve and multiply the breed of these animals, which are everywhere inferior in swiftness, beauty, and sagacity, to those of Arabia. Their owners live with them as domestics; on whose service and affection they can rely. The Arabian, his wife, and family, his mare and her foal, generally lie indiscriminately together in the same tent: the little children frequently climb, without fear, upon the body of the inoffensive animal, which permits them to play with, and caress it without injury. The Arabs never beat their horses; they speak to and seem to hold friendly intercourse with them: they never whip them; and seldom make use of the spur. Instead of crossing the breed, as with us, the Arabs take every precaution to keep it pure and unmixed. They preserve, with great care, the genealogies of their horses, some of which are called nobles, being, as they express it, of a pure and ancient race, purer than milk. These Arabs are simple, mild, and docile: and the different religions that have prevailed in these countries, and the several governments to which they have been the subjects or tributaries, have produced very little change in their habits or character.

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The Arabs had ever entertained an affection for their city of Mecca. They supposed it to have been the residence of Abraham, and they flocked from all parts, to a temple of which they believed he was the founder. Mahomet banished the idols from this revered place, and dedicated it to the unity of the Supreme Being; but when he got into power, his institutes shew him to have been an acute politician. To promote the concourse of strangers to a city which he intended to make the capital of his empire, he commanded that all who embraced his law should, once in their lives, undertake a pilgrimage thither, on pain of dying reprobates if they disobeyed. He ordered also that every pilgrim, of whatever country he was, should purchase five pieces of cotton, and get them consecrated, and made into handkerchiefs for himself and all the persons belonging to his family who were prevented, by reasonable impediments, from undertaking this holy expedition. This policy made Arabia the centre of a prodigious trade, when the pilgrims amounted to several millions; but this zeal is so much abated, especially on the coast of Africa, in Hindoostan, and Persia, in proportion to the respective distances of those places from Mecca, that the number is reduced to 150,000, the majority of whom are Turks.

We might now, consistently with our plan, cross the Red Sea, and make our descent upon Africa; but there is an Asiatic nation, settled in Europe, who retain the eastern dress and manners, and who include, in their territories, the principal places which have been celebrated in the Greek and Hebrew writings. We may just pay them a transient visit, and then pass through the Propontis, the Hellespont, and the Archipelago, among the ruins of Greece: and still pursuing our imaginary way, we may cross the Mediterranean to the seven mouths of the Nile.

In passing from Mecca to Constantinople, we cross the route of the Midianites and Ishmaelites when they took Joseph into Egypt, whom they had bought of his brethren; and the track of Jacob and his sons, when they came to the court of Pharaoh: we traverse also the line of the march of the children of Israel in the wilderness, on their egress from Egypt; of the numerous armies of Ethiopia and Egypt in their attacks upon Asia; of the Scythians, Assyrians, Babylonians, Persians, Macedonians, and Romans, on their conquests of Egypt; and of the Mahometans, in later times.

On leaving the wilderness, and proceeding northwards, we enter Palestine. In Asia, as we have seen, have arisen different teachers and leaders of the people; and various have been the religious systems they have established. In general, polygamy, and, in many instances, war has prevailed in the east; but in Palestine, an example of a very different kind has been exhibited: yet the professed followers of Jesus, regarding the place of his life, sufferings, and death, with partiality, have resorted to this very country, where he shewed such an example of patience and peace, and disputing the place with the Mussulmans, have moistened the soil with blood. They called the country the Holy Land; and, what was still more absurd, they

they denominated those extravagant expeditions, the crusades, wherein millions of the Christians from all parts of Europe lost their lives, Holy Wars. At present they content themselves with the opportunity of performing pilgrimages to the sepulchre at Jerusalem; which town, about three miles in circumference, now includes Mount Calvary within its walls. Bethlehem is also much visited by pilgrims; and from Mount Horeb to Nazareth, convents, chapels, &c. are scattered along through this celebrated country, on the spots where the remarkable events recorded in the Bible have happened. The Christians are unmolested, and even protected by the Turks, who derive a profit from the pilgrimages to their country.

The Mahometans, in propagating their faith by force and arms, have acted consistently with the precepts and example of their prophet.

The Goths and Vandals, in overturning the Roman empire, and in ravaging and reducing the southern provinces of Europe, have acted with equal consistency. Woden was their preceptor; Woden was also an Asiatic; he became the Mars of the north.

When the Scythians had been driven out by the Romans under Pompey, from that vast space which lies between the Euxine and Caspian seas, they overran the countries on the north and west of Europe. Woden, the leader, infused into the people such a hatred against the tyrannical power of the Romans, that in a few centuries after his death, after having shaken it by repeated attacks, they were at length successful enough totally to subvert it. The invincible boldness and impetuosity of these people did not arise merely from their savage manner of life, and the rough and military education they received; the sanguinary tenets of the religion of Woden, established or confirmed their ferocious manners. That victorious impostor ordered that all the implements of war, such as swords, axes, and lances, should be deified. The most sacred engagements were confirmed by these instruments, which they so highly valued. A lance, set in the middle of a plain, was the signal for prayer and sacrifice. Woden himself, at his death, was ranked among the immortal gods, and was the first deity of those regions where the rocks and woods were stained and consecrated with human blood. His followers thought they honoured him by calling him the God of Armies, the Father of Slaughter, the Destroyer of Mankind, the Promoter of Discord. The warriors, when they went to battle, made a vow to send him a certain number of souls, which they devoted to him: these souls were the right of Woden. It was the general belief that he appeared in every battle, either to protect those who fought valiantly, or to mark out the happy victims he reserved for himself; that these followed him to the regions of bliss, which were open to none but warriors. The people ran to death and to martyrdom, to obtain this reward; and this belief increased their propensity to war, till it grew to enthusiasm.

That the followers of Mahomet and of Woden should raise the cry of war, and enter into its enormities, seems not at all wonderful; but

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but that the professed followers of the meek and humble Jesus should run into such excesses, seems unaccountable. As these, however, in the practice of war, have acted in direct opposition to the teacher they professed to follow, their deeds have been yet more atrocious than those of the others; and the ravages and the massacres committed by the Europeans on their first arrival in the East and West Indies, were generally perpetrated under the banner of the cross. In those days, they derived their authority from the pontiff of Rome, who gave them the lands of the heathen for their inheritance; and the most sanguinary ruffians accounted themselves the apostles of the holy faith.

In pursuing our ideal journey from Mecca to Constantinople, on our right hand we leave the magnificent ruins of Palmyra in the Deserts of Arabia, and those of Balbec or Heliopolis in Syria: Babylon and Nineveh are no more to be distinguished. On our left hand, Gaza, Tyre, and Sidon, from their advantageous situation, continue to be sea-ports to this day. Troy is still discoverable by its ruins. Its situation is on the eastern side of the Archipelago, at the foot of Mount Ida; and about an hundred miles north of it, on the other side of the water, on the Thracian Bosphorus, stands the city of Constantinople.

The Grand Signior is despotic, like the other monarchs of the east; and here polygamy prevails, as in the other Mahometan countries.

In Constantinople there is a market for slaves of both sexes; and the Jews are the principal merchants, who bring them to be sold. There are great numbers of girls brought from Hungary, Greece, Candia, Circassia, Mingrelia, and Georgia, for the Turks, who buy them for their seraglios. O religion of Jesus, much as thou hast been perverted, thou hast not yet been tortured into a sanction for such abominations as these! Happily, chastity yet continues to be acknowledged by thy professors to be one of thy precepts. Happily they have not yet descended to this last, this lowest step, of a brutalization of the human species. In a few instances, they have followed the examples of the Hebrew patriarchs; they have had more than one wife. Philip, Langrave of Hesse Cassel, wanted, while his wife was yet living, to marry a young woman, named Catherine Sael, and applied to Luther for a dispensation; who convoked a synod of six reformers. They found that polygamy had been practised by a Roman emperor, and by several of the kings of the Franks, and concluded, that marriage was only a civil compact, and that the gospel had nowhere, in express terms, commanded monogamy. They therefore signed a permission for Philip to marry another wife; which he did soon after, with the seeming consent of his first wife, the Princess of Savoy; and thus Luther exercised an authority which, not even the most enterprising of the popes, in the plenitude of their power, had ever attempted. The famous Jack of Leyden, who pretended himself to be a prophet and a king, asserted that he had a right to follow the example of the kings of Israel, and proceeded to marry seventeen wives before he was cut off in his career. And the present age has afforded

a champion in defence of polygamy. A late preacher, of the church of England, in London, vindicated the practice, and, consistently with his doctrine, married two wives.

The Christians have laid hold of those who had none to help them, of both sexes, and of every age: they have bought and sold their fellows, like beasts of the field; and, in accomplishing their cruel purposes, they have made the most dreadful desolation; but they destinated their unhappy victims to labour; they generally received the gain of oppression, but not of prostitution. It is to be hoped, that there will never be a market among the professors of Christianity, where such violence will be committed on the feelings of the female heart. Yet, if there be a partner who, from selfish views, is capable of attempting, or even wishing, to divert the affections of his child from the object of her esteem or love, however plausible he may talk of prudence and duty, of her welfare and good, and of his wish to see her comfortably settled, is he not fit to take a station in this abominable market of Constantinople? The man who can wish his daughter to give her hand to him who has not her affections; who presumes to dictate to her; who can wish her to prefer, in any degree, one suitor before another, because he has possessions, is fit for such a market; and the wretch who can knowingly accept a partner on such terms, would be capable, had he the countenance of the multitude, of keeping his haram or seraglio, and of becoming a customer to the unworthy parent. The chaste principle of Christianity has not possession of their minds; they have not a right to reprobate the licentious maxims of Mahomet.

In passing from Constantinople to the Nile, by water, we sail through the sea of Marmora, the Dardanelles, and the Archipelago, or the Propontis, the Hellespont, and the Egean Sea. On our right, we leave the magnificent ruins of Athens, and the more decayed ones of Corinth, and others in the Peloponnesus, now called the Morea. There, and in the islands, the Greeks lead an indolent sort of life. Under the dominion of the Turks, they have lost that energy that formerly marked their character, when, notwithstanding their continual intestine broils, and their wars with the Persians, they cultivated the arts to such a degree of perfection, that they have never since been equalled. They profess Christianity, and are unmolested in their worship by the Mahometans. In this route we cross the tracks of Paris, who carried off Helen; and of the Greeks confederated against Troy; of Alexander against Asia; and of Tamerlane against the Turks: we cross also the line of march of the numerous armies of Xerxes, when he invaded Greece, for they crossed the Dardanelles, or Hellespont, by means of a prodigious bridge of boats. On leaving the Archipelago, the island of Candia, formerly Crete rises on the view with mount Ida, a sharp-pointed rocky hill, in its centre. In passing this celebrated isle, we cross the track of the Centurion who took Paul a prisoner to Rome. The first city in Africa which presents itself to view, on entering the Nile, is Alexandria; and 125 miles up this celebrated river, stands Grand Cairo, the capital of Egypt.

SECTION

SECT. X

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SECTION XII.

The countries of Africa : Egypt, Barbary, Ethiopia, Negroland, and Guinea ; Enslavement of the Africans ; and Slavery in Antiquity.

The most striking and most deformed part of the sketch of Africa, is the traffic that is carried on here in the persons of men. We pass hastily the pyramids, and the other immense productions of art and labour, with the broken statues and ruins of the cities and the temples scattered along the northern parts of this quarter of the globe. We shall glance, in a very transient way, on the other parts of Africa, and make haste to that coast, where, as in a focus, the crimes of three quarters of the globe are concentrated ; but where the compassionate mind will feel some relief in finding that Michael has here commenced his war against the Dragon.

The British settlements of Sierra Leona and Bulama, and the Danish one at Aquapim, are directly opposed to the slave trade. The object of these colonizations is to raise there, by the hands of free-men, the productions of the West Indies, cultivate useful knowledge among the natives, and to establish a commerce which may be beneficial to Europe and Africa : a commerce unpolluted with crimes, unstained with human blood. May the angels or messengers of help, to the most abused portion of the human race, see the happy effects of their pious labours ! and may the hands of their opponents be chained up for ever from the continuation of their abominable practices.

137. *Egypt, Barbary, Ethiopia, &c.*] The Egyptians and the Moors, along the northern coasts of Africa, from the shores of the Red Sea to those of the Atlantic Ocean, are acquainted with arts and manufactures. In antiquity, the Egyptians were famous for science, the Carthaginians for commerce and navigation, and the ruins of their former magnificence astonish to this day ; but the reveries of astrologers form the science of modern Egyptians ; and piracy is the employment of the marine of the Moors. Christian churches were also gathered in this country at an early period, as well as in Asia and the southern parts of Europe ; but here, as in Asia, the doctrines of Mahomet have superceded the profession of Christianity. In the other parts of Africa, they seem very generally in the practice of idolatry ; but the inner parts of this country are but little known to Europeans ; they all appear however almost wholly ignorant of sciences and arts ; and their chief barter is consequently natural productions ; as gums, bees wax, animals, elephants teeth, gold dust, &c,

South of Egypt lies Ethiopia, a track extending, in its largest acceptation, to the Cape of Good Hope ; its borders on the west, as undetermined as those of ancient Scythia ; and in its different countries of Nubia, Abyssinia, Zanguebar, Caffraria, Lower Guinea, &c. including, perhaps, a greater variety of manners and men than Tartary itself. The jealousy of the Abyssinians, and the prohibition of the

Turks, who claim their borders on the Red Sea, and engross their traffic of gold, emeralds, horses, rice, &c. for the manufactures of the loom, prevent us from knowing much of themselves: we have learnt, however, that their profession is a mixture of Christianity and Judaism. South of this, in Monoemugi, it is said there are Cannibals, who offer up human sacrifices; sparing none who are hardy enough to venture through their country. All along the coast of Zanguebar, on the south-east side of Africa, the Portuguese have settlements; and, in some parts, have commixed with the natives, and prevailed on them to adopt the European mode of dress. At the Cape, or most southern part of the continent, we meet with the Dutch: these cannot boast a similar acquisition. The Hottentots are so entirely attached to liberty, and their own manner of life, that they have not yet, any of them, become converts to European customs; they move about in companies, with their huts, besmear their bodies with grease and foot, and put heaps of it on their heads, which, when clotted and hard, form a filthy sort of cap. They wear mantles of sheep's skin with the wool outwards; and wrap thongs of half-dried skins round their legs, which make them walk like a trooper in Jack-boots. They have particular dances when the moon is new, or at full, which looks like idolatry. They punish murder, adultery, and robbery, with death.

138. *Negroland, Guinea, and Enslavement of the Africans, &c.* Along the western coast of Africa, also on the shores of Negroland and Guinea, the Europeans have many settlements: hence they bring gold dust, elephants teeth, gums, and drugs; their traffic stops not here: alas! they make even men an article of commerce!

Parents and children, partners and friends, and every individual, how would you like to be torn from your every nearest and most tender connection, and from your dear native home, and carried into bondage you know not whither, by people whom ye never injured, and with whom ye have no acquaintance? yet such is annually the lot of thousands, and tens of thousands, of the poor natives of Africa! and it is a lamentable truth, that their oppressors are those who make profession of the Christian name, and that the legislature of our nation encourages this business. It is to be hoped, in charity to the king and his counsellors, that they cannot be fully sensible of the sufferings of the poor oppressed negroes; for if they were, surely they could not find peace of mind till they exerted themselves to put a stop to such iniquitous proceedings, the very relation of which might make the hearts of the peaceful melt with pity, and those of well-meaning zealots burn with indignation. While it is a maxim in the law of this land, that its air is too pure for a slave to breathe; or, in other terms, that the instant a slave sets his foot down in it, whatever may have been his condition before, he becomes, free how extremely unjust and inconsistent must it appear, that countries abroad, which own no other government, should be under so very different a predicament! that men are there bought and sold like the beasts of the field! And how much of selfishness and ostentation must we suspect in the boasts of the English, that their laws are thus free, and

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declarative of the natural rights of mankind, while the very same laws hold thousands in a bondage worse than that of Pharaoh, who, with his numerous host, we read, was swallowed up in the Red Sea for hardness of heart.

It is said by some of the traffickers in the human species, that the negroes are brought from a wretched cruel country; and that they profit much by their being transported to the more humane European settlements. Guinea is not free from the calamities of human life, any more than other countries; but alas! how has the catalogue of these been swelled, by their intercourse with white people! and, however diligently these may propagate reports to excuse their traffic and palliate their crimes; whatever they may persuade themselves, in justification of this shocking trade, the facts related by human observers, and even by some of themselves, might seem sufficient to pierce the most unrelenting breasts; but the love of gain has steeled the hearts of these wretched people against the impressions of pity, and blinded their eyes, that they cannot see the beauty of justice, mercy, and truth; and their history affords, perhaps, the most melancholy picture of the depravity of mankind, to be met with this day on the face of the earth. Happy the man, who, seeing what lengths these poor people have got to, by giving way to avarice and the violence of their passions, takes warning against the evils of pride and selfishness! Happy he, who, feeling the infirmities of human nature, learns to pity this most lamentable description of people, whose situation is more deplorable, infinitely more so, than that of the poor innocent negroes, who endure their oppression, who look forward with hope to the awful period which delivers them from their bondage, and meet it with joy and smiles on their countenances. An account of the black people in their native country; the manner of their capture; their treatment on the voyage, and afterwards in slavery, may piteously shew what cause there is given for the preceding reflections and remarks.

"Which way soever I turned my eyes on this pleasant spot," says Adanson, in his Account of Goree and Senegal, "I beheld a perfect image of human nature: an agreeable solitude bounded on every side by charming landscapes; the rural situation of cottages in the midst of trees; the ease and indolence of the negroes, reclined under the shade of their spreading foliage; the simplicity of their dress and manners; the whole revived in my mind the idea of our first parents, and seemed to contemplate the world in its primitive state. They are, generally speaking, very good-natured, sociable, and obliging." This description appears equally applicable to the other parts of the country.

Guinea seems, generally, very populous and well cultivated: in some parts looking like an entire garden, interspersed with villages and towns. Wild fowl and poultry are very numerous: their meadows feed vast herds of large and small cattle; the low grounds, in some places divided by small canals, are sown with rice: the higher land is planted with Indian corn, millet, and pease of different sorts: they are plentifully

plentifully supplied with potatoes and fruit. The natives are generally a good sort of people:—honest in their dealings; friendly to strangers; of a mild conversation; affable, and easy to be overcome by reason. The more discerning of them account it their greatest unhappiness that they were ever visited by the Europeans, the Christians having introduced the traffic of slaves, and banished that peace from amongst them they formerly lived in.

The calamities to which these poor people are exposed, in every stage of this iniquitous traffic, seem to be unparalleled in the history of any other nation, whether ancient or modern. Iron and other manufactures of Europe, are the articles given in exchange for the poor slaves; for these, the corrupted Africans will practise every violence and cruelty on their countrymen. If a ship comes in sight, it is considered as a sufficient motive for a war, and as a signal for an instantaneous commencement of hostilities. They fall on the neighbouring nations, for the purpose of making prisoners or slaves; and in the tumult of war their rage often predominates, even over motives of avarice. In the height of their fury they massacre their opponents. If a king fails in making prisoners of his enemies, he surrounds with his army one of the towns of his subjects, sets fire to the houses, and picks up the people as they attempt to escape from the flames. These evils are not merely confined to the coasts; the negro-factors go many hundreds of miles up the country with goods brought from the Europeans, where markets of men are kept in the same manner as those of beasts with us. When the poor slaves, such as survive the fatigues and hardships of the journey, are driven down to the sea-shore, they are stripped naked, and strictly examined by the European surgeons, both men and women, without the least distinction or modesty: those who are approved as good, are marked with a red-hot iron, with the ship's mark, after which they are put on board the vessels, the men being shackled with irons, two and two together. Besides these methods of procuring slaves in multitudes, the factors, or free negroes, as they are termed, who live on the coast, and know how to speak the European languages, are furnished with arms and ammunition, and thus equipped, they sally forth into the country, and kidnap numbers of children of both sexes, which they find on the roads, or in the field where their parents keep them all day to watch the corn; for those whom they meet with strong and grown up, they look for a clog of wood, and fasten them to it by the wrists with staples, and thus bring them to the vessels, labouring under the load. In vain the parents bewail the loss of their offspring; or in vain the tender family at home in the village expect the coming of their fire, with the approach of the night! the shed must no more be enlivened with their presence, nor their labours be alleviated by their company in the fields!—So enormous are the practices ye have stirred up, ye degenerate sons of Europe, among these well-meaning people! and so bitter the afflictions ye have strewed round their dwellings!

Leaving those regions of sorrow and desolation, we may expect the scene to brighten, on contemplating the farther lot of the captives: but alas! their sufferings seem only beginning. Under the

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weight of affliction, some being snatched from all that was dear to them upon earth, and under the dreadful apprehension of an unknown perpetual slavery; pent up within the narrow confines of a vessel, sometime six or seven hundred together, they are often reduced to a state of desperation, wherein many have leaped into the sea, and kept themselves under water till they were drowned: others have starved themselves to death: great numbers have also frequently been killed: and some deliberately put to death, under the greatest torture, when they attempted to rise, in order to free themselves from their present misery and the slavery designed them.

It may be said that they are plentifully supplied with food on the voyage, and that every precaution is taken that can be conducive to their health. The sailors, it is true, often complain, that they themselves are sadly pinched; some having been inveigled on board, and then detained against their wills, that they are obliged to make it out as well as they can, by getting in with the negroes, who are well provided for. The captains wish, say the crew, to bring the slaves in good order to market, and to make us so tired of their usage, that we may desert them in the West Indies, and so lose our wages. Thus do cruelty and fraud mark the manners and habits of these wretched people, in every stage of this inhuman business.

That their care of the negroes proceeds not from good-will, may lamentably appear, from their inhuman treatment of them sometimes when they are quiet, and not attempting an escape. If there should be any necessity, from tempestuous weather, for lightening the ship; or if it be presumed, on the voyage, that the provisions will fall short before the voyage can be made, they are many of them thrown overboard. Indeed, so lightly have their lives been esteemed, that they have been taken upon a speculation, that it would be more profitable to drown them than to run the hazard of their dying. In 1781, 122 were thrown overboard from one vessel; ten others, who were brought upon the deck for the same purpose, did not wait to be handcuffed, but leaped into the sea, and shared the fate of their companions; yet the people in the ship had not been put upon short allowance; but the wretched captain made this excuse on board for his conduct:—"That if the slaves, who were then sickly, had died a natural death, the loss would have been the owners; but, as they were all thrown alive into the sea, it would fall upon the underwriters." Thus, ye insurers, were ye liable to be defrauded, by meddling in this iniquitous traffic; and thus did ye yourselves, ye inconsiderate or wicked men, defraud the negroes of their lives. The preceding fact was proved, in your law-suit with the owners, at Guildhall: the horrid deed is recorded in the annals of that court; where, perhaps, more enlightened generations to come may look back with horror on the rude practices of their predecessors. Hundreds can come forward and say, that they heard the melancholy evidence with tears; tho' the perpetrators of the murders escaped the punishment due to their crimes!

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If the ship should arrive safe at its destined port, the wretched Africans are again exposed naked, without any distinction of sexes, to the brutal examination of their purchasers. In this melancholy scene, mothers are seen hanging over their daughters, bedewing their naked breasts with tears; and daughters clinging to their parents, not knowing what new stage of distress must follow their separation, or if ever they should meet again; and here what sympathy, what commiseration, are they to expect? Why, indeed, if they will not separate as readily as their owners think proper, the whipper is called for, and the lash exercised upon their naked bodies, till they are obliged to part! Having been brought from a country where a very small labour of tillage supplied them abundantly with the necessaries of life, the hardships that are imposed on them are often more than they can bear. Under these, together with change of climate, they droop and die in very great numbers. Those that survive the first two years, are said to be seasoned, or fit to be put into a gang, to undergo the labours and hardships of slavery. Although thousands are slaughtered on the African continent, through this iniquitous traffic, it is estimated, that 100,000 are, notwithstanding, annually brought off from their native country; two-thirds of these by the ships of the English; and that 50,000 are destroyed on the voyage and in the seasoning. Woful havoc of the sons of men! Fifty thousand then annually survive, to work and people the plantations. How must these and their offspring banish solitude from the silent tracks that have been laid waste by the swords of the Europeans, and supply inhabitants in abundance to the islands that have lost even the remembrance of their native Indians! As the same climate, in a few generations, lightens the blackness of their complexions, and throws a shade of darkness over that of the Europeans, how must both, by degrees, be assimilated in their person! and how must they at last imperceptibly commix with each other, and the unbecoming distinction of master and slave be quite worn out! We may amuse ourselves with such reflections as these, and wish to see this aggravated evil in the most favourable point of view. But alas! the catalogue of facts that stares us in the face, obliges us to forego much of the pleasure we might derive from such flattering expectations. These desirable effects but very partially take place: the slaves, continually exposed to the severity of the climate, retain much of their native hue, from generation to generation; while the planters, screening themselves from the heat of the sun, and living at their ease, still retain something of their light complexion; and the negroes, instead of increasing in their slavery, and peopling the solitary wastes the Europeans have made, are worn down by the rigour of the labour imposed on them; and, by the accumulated hardships they are constantly exposed to, their days are shortened, and their generations become extinct; inasmuch, that in one of the western colonies of the Europeans, 650,000 slaves were imported within 100 years; at the expiration of which time, their whole posterity were found

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to amount to 140,000. There is, perhaps, no part of the earth where beasts of burden are so much oppressed as the negroes in the sugar plantations. They are sixteen hours, including the two intervals at meals, in the service of their cruel masters; and the shouts of their drivers, and the cracks of the whip on their naked bodies, which cuts out small pieces of flesh at almost every stroke, are heard all day long in the fields. When wearied with this, they are employed three hours more in making the necessary provision for themselves; five only remain for sleep, and their day is finished. During the time of crop, which lasts many months, they are often obliged to work all night in the boiling-houses or mills. The whole gang, as the planter calls his collection of slaves, is divided into two or three bodies; and each division takes its nights by turns in the works: this is a dreadful encroachment upon their time of rest. Those who can keep their eyes open during their nightly labour, and are willing to resist the drowsiness that is continually coming upon them, are presently worn out; while some of those who are overcome, and who feed the mill between asleep and awake, suffer, for thus obeying the calls of nature, by a limb, a hand, or an arm being ground off.

To support a life of such unparalleled drudgery, the master allows to the slave for provisions, clothing, medicines when sick, &c. no more than thirty shillings per annum, upon an average, and a small spot of ground, which he gives him leave to cultivate on the day called Sunday. Pressed by hunger, he eats the vegetables which this produces, before they are ripe, and contracts disease. His own spot is, perhaps, exhausted; and he has the same appetite to be satisfied as before. Perhaps he creeps out clandestinely by night from his hut, to go in search for food into his master's or some neighbouring plantation. The watchman, to save himself from chastisement, is vigilant to detect him, and must punish him for an example,—not with a stick nor a whip, but with a cutlass! Thus it happens that these unhappy slaves, if they are taken, are either sent away mangled in a barbarous manner, or are killed on the spot. Perhaps the negro, in the midst of his labours, and pressed hard by famine, is found eating the cane which his own hands have planted: this is sure to be followed by the whip: and so unmercifully has it been applied on such an occasion, as to have been the cause, in wet weather, of the sufferer's death. Knives, or any thing that could be seized, have been snatched in the fit of phrenzy, and used as instruments of punishment. In their slavery, ears have been slit, eyes have been beaten out, and bones have been broken. And so frequently has this been the case, that it has been a matter of constant lamentation with disinterested persons, who, out of curiosity, have attended the markets to which these unhappy people weekly resort, that they have not been able to turn their eyes on any group

group of them whatever, but they have beheld these inhuman works of passion, despotism, and caprice.

On their being first set down in the plantations, after all the cruelty they have undergone in being forced from their native country, hardly one in a hundred have scars, to shew they were prisoners of war: they are generally such as have been kidnapped, or sold by their tyrants, after the destruction of a village. The slaves are men; they wish to be free; they flee sometimes to the recesses of the mountains, where they chuse to live upon any thing that the soil affords; nay, on the very soil itself, rather than return. It sometimes happens that the manager of a mountain-plantation falls in with one of these; he immediately seizes him, and threatens to carry him to his former master, unless he will consent to live on the mountain, and cultivate his ground. When his plantation is put in order, he carries him home, abandons him to all the suggestions of despotic rage, and accepts a reward for his honesty. The unhappy wretch is chained, scourged, and tortured; and all this because he obeyed the dictates of nature, and wanted to be free. If he has been absent six months, he falls a victim to impious law; he is considered as a criminal against the state; he is tried and condemned by two or three justices of the peace, and without the intervention of a jury. The marshal, or sheriff, superintends his execution; and the master receives money, as the price of the slave, from the public treasury. Perhaps a reward has been offered for him, dead or alive. In that case, he has not so much time allowed him; his merciless pursuers overtake and shoot him, they cut off his head, and exultingly bear it away, still reeking with blood: this they produce, as the proof *required by law*, to entitle them to the reward. The Africans are men; they have sometimes ventured to resent their abuses, and resist their opposers: what has been the consequence? they have been murdered at the direction of their masters; for in those cruel countries, the life of a negro is only valued at a price that would scarcely purchase a horse. The master has the power of murdering his slave, if he pays a moderate fine; and the murder must be attended with uncommon circumstances of horror, if it even produce an enquiry. The negroes, say their oppressors, are an inferior link in the chain of human beings, and intended for slavery. It may seem superfluous to disinterested people to contradict so absurd a position: it may be remarked, however, that the descendants of the Portuguese, in Zanguebar, have become such a people; their heads having grown woolly, and their complexions black, while those of the negroes in the northern parts of America, and also in Europe, have got long hair and fair complexions. But it is well known that the negroes have capacities like other men; that they become expert workmen, and fine writers, both in prose and verse, when they have an opportunity of learning.

The following little extract from the writings of an African girl, being part of a hymn, may serve to shew, that nei-

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ther genius nor yet devotion is peculiar to the people of white complexion :

Fill'd with the praise of him who gives the light,
And draws the sable curtains of the night,
Let placid slumbers soothe each weary mind
At morn, to wake more heav'nly and refin'd ;
So shall the labours of the day begin
More pure and guarded from the snares of sin.

The authoress of these lines was Phillis Wheatley, negro slave to John Wheatley, of Boston, in New England. She was kidnapped when only eight years old ; and in the year 1761 was transported to America, where she was sold with other slaves. She had no school-education there ; but receiving some little instruction from the family where she lived, she obtained such a knowledge of the English language within sixteen months from the time of her arrival, as to be able to speak and read it, to the astonishment of those who heard her. She soon afterwards learned to write : and, having a great inclination to learn the Latin tongue, she was indulged by her master, and made a progress. Her poetical works were published in the year 1773, when she was about twenty years of age. They contain thirty-eight pieces, on different subjects. While the history of this young woman shews that the negroes are not a race of beings inferior to white people, it affords us the pleasure of also observing, that they do not always fall into the hands of inhuman tyrants. Probably, many have been in the practice of purchasing those poor, forlorn, expatriated people, from motives of benevolence, or to prevent their falling into the hands of cruel taskmasters.

Since the late devastations of the sword on the American continent, the lot of the negroes appears in some places to be growing somewhat more tolerable. In America, several members of the church of Rome, of England, of Scotland, of Independents, and others, have liberated their slaves, convinced that it is wrong to rob poor innocent people of their liberty. The Society of Friends have done this in a collective capacity ; and many of them have made restitution to the people so liberated, for the time they had kept them in bondage. The king of Denmark has decreed that the slave-trade shall be abolished in his dominions. The British House of Commons has resolved that the slave-trade shall be abolished. The American Congress has decreed its abolition ; but they yet retain in their boasted land of liberty, about 700,000 in bondage ; they are, however, continually setting them free ; and in the northern states, all the slaves have been already emancipated. It is remarkable, that, before the war, the province of Virginia petitioned the British government to prohibit the farther importation of slaves ; but their request was not complied with ; and this prevented others from applying in that way. The French Convention has abolished the slave-trade, and emancipated the slaves throughout their whole republic.

It is to be feared that, in many instances, the most earnest advocates for the negroes, are not yet fully conscious that they are not their superiors. Intermarriages seldom take place between the blacks and the whites; and they even assemble, in some instances, separately for public worship. How contrary is this to the fraternal sentiment, that we are all children of the same Almighty Parent, who regards us all with equal mercy. The church of Rome has always distinguished itself for its zeal in propagating its religious tenets among the heathen; and there seems to have been less of these abominable prejudices manifested in that community, where the people have once received their doctrines. The society which has taken the lead in emancipating the slaves, and which has most of all renounced outward forms and ceremonies, seems to have been the last in rising superior to these prejudices. While the most enlightened authors have been their panegyrists, for their zeal in espousing the cause of the oppressed, they have been the most backward in receiving into religious fellowship the people of a different colour, instead of making haste to do justice to the catholic principle which they profess, in giving the fraternal embrace ere the chain of bondage was yet broken.

We might now take our leave of the subject of slavery, and the parts of the earth it has so hideously deformed, under the comfortable information that the evil has rather abated, and under the pleasing hope that it will at length entirely pass away: however, before we enter upon the lands of greatest liberty,—the interior tracks of America, where the natives seem unrestrained and free to a degree of wildness; where the senate, while it debates on the interest of the tribe, leaves individuals to decide their own contests between themselves; and where the children must not be corrected, for fear of breaking their native spirit of freedom,—a very short history of slavery, in general, may perhaps be entertaining.

139. *Slavery in Antiquity.*] Besides the bond-servants we read of in antiquity, who found protection and a comfortable provision in the household of the patriarchs; and such as sold all that they had, their lands and themselves to Pharaoh, for corn in the time of famine, when Joseph was governor; who removed them to cities from one end of the borders of Egypt to the other, and gave them seed to sow the land, and made a law that Pharaoh should have the fifth part of the increase, and four parts should be their own for seed of the field, and for their food, and for them of their households, and for food for their little ones; besides these, we read of slaves of other descriptions, at very early periods. It was generally customary with the nations in antiquity to lead their prisoners of war into captivity; and these, with their offspring, were detained in servitude. The Goths also in later days, on the subversion of the Roman empire, imposed on the people they had conquered, the severity of servitude. It is thought that this class of slaves had its beginning as early as the

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the days of Nimrod; and the horrid practice of kidnapping, or stealing off, and selling the human species, appears to be of equal antiquity. The story of Joseph, as recorded in the sacred writings, shews that there were men, even at that early period, who travelled up and down as merchants, collecting, not only spicery and other wares, but the human species also, for the purposes of traffic. Homer mention Egypt and Cyprus, as common markets for slaves, about the time of the Trojan war; and Xenophon, in describing the dramatic Grecian dance, called Harpea, gives a most lively picture of the rueful days of antiquity; when the stealing of men, as it was accompanied with danger, was accounted valour; and pirates fought at once emolument and honour in the equally hazardous and iniquitous business. The figure of the Harpea was thus: one of the actors, or Grecian soldiers, in the character of an husbandman, is seen to till his land, and is observed, as he drives the plough, to look frequently behind him, as if apprehensive of danger; another immediately appears in sight, in the character of a robber; the husbandman, having seen him previously advancing, snatches up his arms, and a battle ensues before the plough. At length the robber, having got the better of the husbandman, binds him, and drives him off with his team. Sometimes it happens that the husbandman subdues the robber: in this case the scene is only reversed, as the latter is then bound and driven off by the former. This entertainment, it may be observed, was taken from real manners.

We learn from Thucydides, that the Grecians themselves, in their primitive state, as well as their contemporary barbarians, who inhabited the sea-coast and islands, gave themselves wholly up to piracy, as their only profession and support. As well whole crews, for the benefit of their respective tribes, as private individuals, embarked in this shocking business: they made descents on the sea-coasts, carried off cattle, surprized whole villages, put many of the inhabitants to the sword, and carried others into slavery. The Jews held some of the heathen in bondage, yet were restrained by the law from abusing their persons, and were obliged to give them their Sabbaths and jubilees. It was appointed that there should be one law, and one rule of justice for the native and the stranger; and they were repeatedly called on to remember, that they themselves had been slaves in Egypt, and strangers in their land. Such were the restrictions the Jews were under, in their conduct to the heathen slaves, though only under the Mosaic law. It now remained for Christianity, which breathes peace on earth, and good-will to man, to abolish the distinction between Jew and Gentile, Greek and Barbarian, Bond and Free. The first converts to the doctrines of Jesus, were conspicuously a family of love, averse from the vain distinctions of the world, having all things in common: even in after-ages, when the glory of the most holy religion seemed much obscured in its professors, the principles of benevolence, which it inculcates, generally prevailed at length against the barbarous, universal, and ancient practices of holding servants in perpetual bond-

dage, which had long deformed the Gothic times: *pro amore Dei*, or, for the love of God; *pro mercede animæ*, for the good of the soul, charters were granted for the manumission of the slaves, which then composed the majority of the people; and about the close of the twelfth century a general liberty prevailed over the west of Europe. But alas! the professors of the Christian name, when these happy reformations had been wrought at home, many of them abroad renewed the piratical manners of antiquity: the Portuguese led the way; the English, the Spaniards, the French, and other maritime powers soon followed the example. Within two centuries of the preceding happy era, which so generally abolished slavery in this part of the world, the Europeans made their descents on Africa; and committing depredations on the coast, first carried the wretched inhabitants into slavery: the natives terrified, fled in confusion from the coast, and sought in the interior parts of the country a retreat from the persecution of the invaders. The Europeans pursued, entered their rivers, sailed up into the heart of their country, surprized them in their retreats, and dragged them off. Again the natives fled in consternation, abandoned the banks of the rivers, and left the robbers without a prospect of their prey. The freebooters now adopted different measures; they built themselves forts, and settled in the country. With the gaudy trappings of European art, they excited the wonder and curiosity of the Africans; by presents, and every appearance of munificence, they seduced their confidence and attachment; they found out suitable tools for their iniquitous designs; put these upon furnishing them with their countrymen for slaves; and thus, when they themselves could no longer be thieves, they at last became receivers.

SECTION XIII.

The Discovery of America, and the Events which followed it; with a Description of the Indians, or native Americans.

We may now consider the aborigines of America, or the native Indians of the New World. The Europeans have settled here in far greater numbers perhaps, than in all the other parts of the earth: a view of these people, however, is naturally included in a sketch of the nations of Europe. It is not so much their different manners, as different situations and political divisions, that separate them from each other.

140. *Discovery of America.*] The discovery of America by the Europeans, has been productive of events, wherein most of the nations of the earth appear to have been immediately or remotely interested. While the nations of Europe were involved in yet greater barbarism than at present, this beautifully diversified quarter of the globe first presented itself to their wondering view. The enterprising

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enterprising and the needy, the active and the indolent, the zealous and the persecuted, considered it as an asylum from their wretchedness, or as a theatre for more extended action. Till this day, it still continues to invite us; till this day emigrations are annually made.

In antiquity, the Greeks and Romans, from their improvements in learning, in sciences, and the arts, had conceived the vanity to account themselves superior to the other nations of the earth, and had the insolence to term them Barbarians, by way of contradistinction. This was gross, even in heathens; but the later Europeans seem to have gone far beyond the antients in these errors. The erring tenets of Christians induced them to consider those nations who were not of their profession, as a neglected race whom they might subdue and enslave, in order to convert them. On the discovery of America, millions of them were put to the sword; they were hunted down like wild beasts, and their bodies cast to the hungry dogs of the Europeans. It was familiar to the early adventurers to speak, in cold blood, of giving or lending the carcase of an Indian till more should be obtained. By a cruelty, still more oppressive, and from the same insatiable thirst for gold which had produced their immediate slaughter, the wretched Indians were exterminated in still greater numbers. They were buried in the mines, and fell victims by want, by excessive labour, and by the unwholesome vapours wherein they breathed: their tender frames, heretofore easily supplied on the kindly soil which they inhabited, soon sunk under their complicated hardships and distress. The springs of life and of population thus sapped by an unrelenting and continual tyranny, their country became waste and desert, and avarice defeated its own purpose. The mischief ended not here. To supply the place of the exterminated Indians, another quarter of the globe is rendered wretched. Africa is, in its turn, desolated, to supply victims to European avarice; wars are kindled among the poor negroes, towns are burnt, and prisoners made for the purpose of enslaving them. Every tender tie, whereby society should be knit together, is rent to pieces; parents, children, husbands, wives, friends, companions, are torn from each other, are sold and branded like beasts of the field; like them are whipt and driven at their labours, and all this, as has already been shewn, by the pretenders to, by the professors of Christianity!

141. *Complexion, Features, &c. of the Indians.*] As the continents of America are extended through every inhabited climate of the world, we may naturally expect to meet with every variety among the several tribes who inhabit this largest quarter of the globe. From the frosts and snows, however, which desolate its most southern extremity, all across the torrid zone, and quite away to the polar regions on the north, there seems to be less difference in the features, complexion, language, and manners of its several tribes than of any other nations comprehended in an equal extent of country. As they appear to have derived their origin, in very re-

more antiquity, from the Tartars on the north, or the clans of wandering Scythians, that were the farthest removed from the arts and manners of the polished nations in antiquity, and quite beyond the notice of all history; as they seem to have continued, with inviolable attachment, many of their ancient customs to this very day; in the history of one these we shall often see a just picture of the rest, and perhaps a most lively representation of the manners of some of the rude nations of the earth in the days of the antients. This widely-dispersed people generally lead a wild and roving life, continually exposed to every severity of the climate, and also anoint their bodies with fat or grease, and colour them with paints: they are of a dark complexion, even in temperate climates. On the other hand, the hottest parts of America are refreshed by breezes, or cooled by the snow-covered mountains, which arise there to an astonishing height. This prevents the natives from becoming perfectly black, like the negroes; and especially as the country is not overstocked with people; and the inhabitants have an opportunity of choosing the most pleasant situations. The natives of America seem to differ more in size, than in features or complexion: indeed, in this respect their extensive country of many climates, seems to afford a greater variety to the eye of an inquisitive and curious beholder than the whole of the earth besides. Who, for instance, are more diminutive than the little Greenlanders, and their neighbours at the polar region? between four and five feet in stature! and what nations are so strong, active, and gigantic as the tall tribes of Indians that are seen in Patagonia? among whom the tallest of the English adventurers, under Commodore Byron, appeared but like pigmies.

Before the Europeans arrived in America, some of the natives, especially the Mexicans, had made considerable advances in the arts; they had canoes, stone-houses, and regular towns; they had temples; but their profession was idolatry. In their picturesque and emblematic drawing, they had made an essay towards the art of writing, or record; but unhappily they had gold and valuable jewels; it was to rob them of these, and take possession of their country, that the cruel Europeans put millions to the sword, reduced others to slavery; and destroying their improvements, together with their government, threw the rest again upon their native wilds: though some of them have been bowed to the yoke of slavery by the Spaniards; and some of them, corrupted by the Dutch, have adopted, like the Africans, the practice of kidnapping; while others again have been reduced to civilization by the Jesuit-professors.

142. *Passion for Liberty, and Public Assemblies.*] These Indians are generally enthusiasts for liberty. Their principal business is hunting, fishing, or war; agriculture and domestic concerns devolve upon the women. When a child is born, the mother and the infant are plunged into the water: the mother attends to business the next day as usual; the child is tied, or swathed down to a piece of board; the

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board, together with the child, is hung upon a branch, laid down upon the ground, or taken up by the mother as occasion may require. In this situation the infant is taken care of without much trouble, till it gets strength in its limbs; it is then loosened, and let to crawl about. As they are brought up without correction or restraint, their passions seem to grow violent with their years, and all their affections seem carried to extremes. Their revenge seems implacable, their friendships unbounded: their prisoners of war are adopted into their own families, and considered as one of themselves, or else they are put to death with the most unrelenting cruelty:—so little idea have they of slavery or subordination, and so marked are all their actions with the extremes of hatred and love.

Upon serious occasions, the Indians are very grave: they are observant of those in company; respectful to the aged; they never speak before they have well considered the matter, and are sure the person who spoke before them has entirely finished. Hence they have the greatest contempt for the vivacity of the Europeans, who continually interrupt each other, and frequently speak all together. In their assemblies and public councils, every man is heard in his turn, according as his years, his wisdom, or his service to his country, have ranked him. In some tribes they have a king, and in some a sort of nobles; but their power is rather persuasive than coercive: they are rather revered as fathers than dreaded as lords. The young attend the public councils for instruction; here they learn the history of their nation; here they are inflamed with the songs of those who celebrate the heroic deeds of their ancestors; here the orators express their thoughts in a bold and figurative manner, stronger than the refined nations of Europe can bear, and with gestures equally violent, but often extremely natural and expressive: here the interests of the nation are debated on, and resolved; they regulate whatever regards the internal peace and order of the state, and determine on future expeditions; the bond of friendship unites the society; every one hastens to execute the orders of the senate: and so unanimous are they in their conduct, and in all their manners, that in the history of the tribe we may read the habits of the individual; and, reciprocally, in the life of the Indian, we have always the history of his nation.

143. *Mode of War, and Conduct to Prisoners.*] When war is resolved on, the principal captain summons the youth of the town to which he belongs; the war-kettle is set on the fire; the war-song and dances commence: the hatchet is sent to all villages of the nation, and to all its allies; war-songs and hideous howlings are heard day and night over their track of the country; the women add their cries to those of the men, lamenting the friends they have lost, either in war or by a natural death, and demanding their places to be supplied by captives from the enemy. None are forced into the war; those that have a mind to share in the expedition, give small billets of wood to the war-captain; they are then considered as enlisted, and it is death to recede. The warriors have their faces blackened with charcoal, and dashed

with streaks of vermillion. The nations of Indians in America are separated by vast desert frontiers, and embosomed in thick and gloomy forests, that must be passed before they meet with the nation whom they intend to attack. These are sometimes wholly ignorant of any danger, the enemy having waited whole years to attack them by surprise; and it falls an easy prey to the unexpected fury of the invaders; but it more frequently happens that it has notice of the design, and prepares to take the same advantage of the least want of vigilance in those who mean to attack them. They light no fires to warm themselves, or dress their victuals, but subsist on the frugal pittance of a little meal mixed with water: they lie close to the ground during the day, and march only in the night, and even then with the utmost precaution. When they discover an army of the enemy, they throw themselves flat on their faces among the withered leaves, from which they are hardly discernible, their bodies being painted of a colour to resemble them. They generally let a part pass unmolested, and then rising a little, and setting up a most tremendous shout, which they call the war-whoop, they pour a storm of musket-bullets upon the enemy. The party attacked return the same cry; and every man shelters himself behind a tree, and fires on the adverse party, the moment they rise from the ground to give the second volley. After fighting for some time in this manner, they leave their covert, and rush upon each other with small axes or tomahawks; the contest is soon decided; and the conquerors satiate their savage fury with the most horrid insults and barbarities on the dead bodies of their enemies. They cut off the scalps, and carry them off to their huts, to hang up as trophies of their valour and victory. The prisoners are offered to those who have lost friends; and he is received into the house or sentenced to death: if the former, he is considered as a father, a son, or a husband that is lost, and no other mark of captivity remains than a prohibition of returning on pain of death; but if the prisoner is refused, it is no longer in the power of any one to save him. The nation is assembled, the scaffold is raised, and the prisoner is fastened to a stake. He immediately opens his death-song, and prepares for the ensuing scene of cruelty with a most undaunted courage, while his persecutors make ready to put it to the utmost proof, by every torment which the mind of man, ingenious in mischief, can invent. The prisoner endures all their tortures with astonishing constancy and resolution; not a groan, not a sigh, nor a distortion of countenance escapes him: he possesses his mind entirely, in the midst of the most exquisite anguish, and only seeks relief from his misery, by insulting his tormentors, and endeavouring, by the most contemptuous reproaches, to provoke their rage, that they may at once put him to death in the height of their fury. This he sometimes effects: and this horrid tragedy, at the recital of which human nature is ready to shrink, is finally closed.

144. *Unreserved Friendship, Funerals, &c.*] As the severity of their temper, on these dreadful occasions, seems unparalleled in the history of any other nation, so the enthusiasm of their friendship seems equally violent.

violent. They delight in their family and friends while they are living; and when they are removed by war or natural death, they regard their remains with friendship and affection. The loss of one of their people is regarded by the whole town to which he belongs; no business, however important, is taken in hand; no rejoicing, however interesting the occasion, is heard, till they have performed their ceremonies in honour of the dead: these are executed with a great solemnity. The body is washed, anointed, and painted; it is followed by the whole village, with mourning and lamentation, to the grave, and there interred with the most pompous ornaments of the deceased. His bow and arrows, together with the things he most valued, and provisions for the long journey they suppose he has to take, are placed by him in the grave. After the funeral, those who are nearly allied to him, conceal themselves a considerable time in their huts to indulge their grief. On these sorrowful occasions, their neighbours come to condole with the afflicted, and amuse or cheer them with presents. After some time, they revisit the grave, they renew their lamentations, they clothe the remains of the body in new ornaments, and repeat the solemnities of the first interment. Every eight or ten years they celebrate a festival, which they call the feast of the dead, or the feast of souls; the day is appointed in the public council; the wealth of the nation is exhausted on the occasion, and all the ingenuity of the Indians displayed; the neighbouring people are invited to partake of the feast, and to be witnesses of the solemnity. The bodies of all those who have died since the last festival are now taken out of their graves; those who have been interred at the greatest distance are diligently sought for by their relations; who, far from being discouraged by their insupportable stench, cleanse them from the worms, and bring them on their shoulders through tire some journeys of several days, without suffering any other emotions to arise than those of regret, for having lost persons who were so dear to them in their lives. When all the bodies are collected together, they are dressed in the finest skins they can procure; the feast is held, their greatest actions are celebrated, and all the tender intercourses that took place between them are recounted. A large pit is dug in the ground, and the bodies reinterred with pomp, with mourning, and lamentation.

The Indians of America hold a future state of existence; they make an offering of their first fruits: some seem to hold in veneration the sun and moon. They have their priests, their conjurors, their fortune-tellers, and doctors, who are regarded by the credulous as possessed of supernatural powers. They regard dreams, and the singing and flying of birds, as omens of future events. Some tribes are peaceful and averse to the bloody business of battles; others sacrifice or devour their prisoners of war. Some derive much of their food from the waters; others principally feast upon venison; some wear skins of beasts; some a kind of cloth which they make from cotton; and others hardly use any covering at all. Before they were visited by the Europeans, their tools and arms were like those of the South

Sea islanders, with the addition of the bow and arrows; like the islanders also, some of them disfigure their bodies, to make themselves look fine; they bore the nose, the lips, and cheeks: they draw down their ears to touch their shoulders, and by pressure they deform the whole head.

SECTION XIV.

A general Description of the People inhabiting the Lands round the North Pole; particularly the Natives of Greenland, and the Laplanders.

Having now completed an imaginary tour round by far the greatest part of the earth, and observed a variety of manners and of men; before we make our descent on the polished nations of Europe, we may lessen our airy flight, and, sweeping a smaller circle on the north, survey the nation of little people that surround the Northern Pole.

145. *The People of the Arctic Regions.*] From Greenland, the most eastern part of North America, westward, round the globe, and across the northernmost wilds of America, Tartary, to the tracks of Lapland, which form the farthest parts of Europe, that are washed by the Frozen or Hyperborean Ocean, the people seem generally immersed in the grossest superstitions. To the regions beyond the grave, they transfer the employments which give them delight while upon earth. There, they imagine, in the abysses of the sea, an elysium of perpetual summer, of plenty of seals, rein-deer, and wild fowl, that are to be hunted without toil, that are even already caught, and boiling in kettles ready for their repast. Here, say they, the diligent and active whale-catchers and hunters of seals, with those that have been drowned in the sea, or died in child-bed, enjoy a happy existence; having first had to suffer in their passage to these delightful regions for five whole days, sliding down a rugged rock, which has hereby been covered with blood and gore. Others, in those lands of meteorous wonders, fancy paradise in the moon; the dances of sportive souls, in the motions of the streamers; and rain, the overflowings of the lakes where they fowl and fish. The *ignes fatui* they suppose to be torngaks, or spirits; and beings of this sort, both benevolent and mischievous, they suppose to inhabit the air, the waters, the cliffs of the rocks, the mountains, the winds, and even the things of that they eat. Their merriments and superstitious meetings are both accompanied with the sound of a drum. They have many romantic tales of spectres and apparitions, or ghosts; these the women relate to their children, and initiate them in the superstitions of their fathers. The sun, moon, and stars, they believe

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to be living creatures; as men, women, rein-deer, dogs, bear-hunters, seal-catchers, &c. During an eclipse of the moon, they carry chests and kettles on the top of the house, and rattle and beat upon them, to frighten the moon back to its place, who they think goes about among the houses to pilfer their skins and eatables, and to kill those people who have not duly observed the rules of abstinence. At an eclipse of the sun, the women pinch the dogs by the ears: if they cry, as they always do, they account it a sure sign that the end of the world is not yet come. When it thunders, they say, two women are stretching and flapping a dried seal-skin, and the thunder comes from that rattle. They believe in witches, wizzards, and angekoks, or conjurors: these pretend to take journies or flights with familiar spirits, to the invisible regions and abodes of souls, while they remain inactive and quiet before the credulous multitude, who are waiting their return in the dark; by and by they begin to stir, and set up a cry; a light is made, and they seem pale and out of breath, as if fatigued with a long journey. On the benedictions of these, and on strange superstitious ceremonies, they depend for good luck in their employments, and for recovery from sickness.

A people thus superstitious, it may well be supposed, would readily imagine something supernatural in the superior arts of the Europeans. In fact, when these read aloud to them, they could hardly be persuaded but the reader must first hear a voice in the book; and it was a good while before they could be prevailed upon to carry a letter, it seemed such a strange and supernatural thing that a scrolled paper could speak to the person who received it, and tell him what the writer wanted as well as they could do themselves.

146. *Their Strength and Agility.*] The strength and agility of body in this hardy little race, is astonishing: after enduring hunger for several days, in their little kajaks, or boats, they will ride out a storm where a European boat could not live. The kajak is principally formed of laths and hoops, and covered with seal-skins both above and below; it is the form of a weaver's shuttle, and six yards in length; in the middle is a hole, into which the Greenlander slips his feet and sits down; he tucks the under part of his water-pelt, or great coat, round the rim or hoop at the hole, that the water cannot penetrate. He has his line coiled up before him, and his harpoons and lances at hand, which are very ingeniously contrived, and curiously made, for striking the seals; but it is with his pautik, or oar, that he navigates his little vessel: this he lays hold of with both hands by the middle, and with great regularity and quickness strikes the water on both sides, and rows along with great velocity. He darts over the boisterous billows like an arrow: if a wave break over him, he is presently again skimming along the surface: if he be overturned, and his head be directly downwards, with a swing of his pautik he recovers his former station; but if he loses this, he is commonly lost himself.

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It is on this trying occasion he creeps out of his kajak, and cries aloud for help: if none be at hand to come to his assistance, he binds himself to his boat, that his body may be found and interred. Their umiaks, or womens boats, are similarly formed, but large and open at top: these are rowed by the women; but the men in their kajaks at hand, shelter it from the greatest waves, and, in case of need, lay hold of the gunnel with their hands, to keep it on a balance. They coast along in these boats voyages from two to four hundred leagues, with their furniture and substance, at the rate of twelve leagues a day. At every night's lodging they unload, pitch their tents, drag their boat ashore, turn it upside down, and load the beams, fore and aft, with stones, that the winds may not blow it away. If at any time the coast will not permit them to pass, six or eight of them take the boat on their heads, and convey it over land, to a more favourable water.

Some of these nations shew uncommon agility in scowring over the incruusted snow on skates of deal or ribs of animals: with these they run down the beasts of the chase; they even overtake the fleet deer; they scale the hills, and slide down precipices. In these exercises they make use of a javelin or pike, and with this they kill the animals they pursue: even the women partake in these labours, and are themselves so strong, that one of them will carry a beam, which it would take two men of the more refined nations of Europe to lift from the ground. Yet, hardy as these people are, and bold amid the dangers they have perpetually to encounter in procuring their sustenance, they have generally been accounted a timid race, incapable of being embodied as military troops. Indeed they seem so much attached to their own native snows, and their own native manners, they have very little idea that happiness can be found in the lands or the pursuits of any nation but their own: and if they shewed as much wisdom in all their partialities, as they do in avoiding the horrid practice of war, we might certainly account them the wisest and happiest nations among mankind. But the strange mixture of good and evil in their manners in social life, renders their national character equivocal and undetermined.

147. *Houses, Tents, and Feasts.*] These people change their habitations according to the season, living in houses in winter; in summer in tents. Their houses are built with stones and sods: these are roofed with beams and rafters, and small wood between them, and over these are laid bushes and turf, and fine earth on the top. They have neither door nor chimney: the use of both these is supplied by a vaulted passage, four or six yards long, entering the middle of the house in the front: this is so low that they must nearly creep on their hands and feet, especially when they first step down into the passage, either from within or without. The walls are hung on the inside with old skins, to keep out the damp: the roof, on the outside, is covered with them also. From the

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middle, all along one side of the house, there is a bench of boards, raised above a foot high, and covered with skin: this is divided into small apartments, resembling horses stalls, by skins stretching from the wall to the posts that support the roof in the middle; each family has a stall, and the number of families in one house are from three to ten. On these floors they sleep upon pelts, they also sit on them; the men foremost, with their legs hanging down, carving their tackle and tools; the women behind them, minding their sewing: these also cook their victuals. Opposite to them, on the front of the house, are windows, made of the intestines of seals, and of halibut's maws, and sewed so neat and tight, that the wind and snow are kept out while the light is let in. A bench runs along under the windows the whole length of the house; on which strangers sit and sleep. By every post there is a fire-place, of a curious and simple kind, for the use of each family: it is nothing more than a lamp hewn out of a kind of chalk, or soft marble. They fill it with the oil of seals, and use fine moss instead of cotton; over this they boil their meat in a sort of kettle of the same substance with the lamp: over all they fasten a wooden rack, on which they lay their wet clothes and boots to dry; and during their dark and tedious winter, the lamps sufficiently enlighten the house, and warm it very equally.

On the coming of spring, when the snow begins to melt, and threatens to run through the roof, they move out of these huts, rejoicing to spend the summer in tents. Their tents are framed with poles, and covered with skins: the order of them is much the same as that of their houses, but they are much more cleanly; and in these they endeavour to display some finery and taste. On occasion of a visit, their guests or visitors are welcomed with singing, and presented with a soft pelt to sit upon; the men talk very gravely and considerately of the weather, of hunting, and fishing; the women first mutually bewail their deceased relations with an harmonious howl, and then divert themselves with little stories, meanwhile the horn with the snuff goes constantly round. When the banquet is brought in, the guests let the host press them often; they pretend indifference about it, lest they should appear poor or half-starved.

They prefer their flesh and fish when quite putrid, and enrich their dishes with train oil; and for a desert, they mix cow-berries with the chyle taken out of the rein-deer. On these occasions, the grand subject of their conversation is their adventures in seal-catching. The left hand personates the seal, and represents the various leaps the animal took this way or that: the right displays the motions and evolutions of their kajak and arm: how they extended their uplifted arm, how steadily they aimed, and how forcibly they impelled the fatal dart. If Europeans are present, they like to hear them relate something of their country. When they are told that such a city has so many inhabitants; that such a number of whales would be required to feed them for one day; but

but that they eat not whales, but bread, that grows like grass out of the ground, and the flesh of divers creatures, some of which have horns; that they are also carried from place to place, either on the backs of very strong beasts, or in vehicles drawn by them; then they think they know it all, and accordingly, bread they call grass, oxen rein-deer, and horses huge dogs; for these are what draw them over the ice and snow. They admire all, and express a desire of living in such a fine and fertile land; but their courage fails when they are told that it sometimes thunders there, and that there are no seals to be caught.

148. *Manners diverse.*] Though several different families with their children, of divers ages, live in one house together, they are so still, circumspect, and peaceful, that scarcely any disturbance is heard amongst them. If a man returns home with provision in the evening, especially with a seal in winter, which are then scarce and hard to be caught, he gives a portion to the poor widows, and to all in the house, and invites some neighbours besides to partake of their good cheer. Hospitality is practised all over the country, both towards their acquaintance and strangers. Their children run about as quiet as lambs; and their fond attachment to their parents grows with their years: they are brought up without chastisement, and treated on the footing of friends. If they are desired to do any thing contrary to their minds, they say, without any ceremony, I will not: and the parents put up with the refusal till the children see their error. When a young man takes a wife, both himself and his bride are subject to his mother, as head of the household affairs. They seldom tell an untruth knowingly, particularly when they are to shew a traveller the way; nay, they will rather go a piece with him. Cheating and stealing, and violent assaults, or highway robberies, are but very little known amongst them. For such people a legislature might seem superfluous: in fact, they are governed rather by manners than by laws; and their drum-dances supply every want of political institutions: in them these simple republics find an Areopagus, or Justice-hall; a gymnasium, or place of sports, and a commercial fair for bartering their little wares. Besides their drumming and dances, they play at ball by moon-light; they have also games for trying one another's strength or hardiness: for instance, two competitors strike one another successively on the bare back with the fist; and he that holds out the longest is conqueror. Again, they sit down, and link legs and arms; or hook fingers together, and he who out-pulls the other is master: a diversion almost as strange, but not quite so dangerous as the sport of wrestling, or the game of throwing one another down. But the method in their assemblies of ending disputes between plaintiff and defendant, is the most strange and extraordinary: If a Greenlander imagines himself injured by another, he betrays not the least trace of vexation or wrath, but composes a satirical poem: this he repeats so often with singing and dancing in the presence of his domestics, and especially

especially women, that they get it in their memory; then he publishes a challenge that he will fight his antagonist, not with a sword, but with a song: the respondent betakes himself to the appointed place, and presents himself in the encircled theatre. The accuser begins to sing his satire to the beat of the drum; his party in the auditory accompany him in the song, and back every line, with repeating in chorus the words *Anna aiah*: he thus exposes the deeds of the aggressor; and the audience laugh aloud. The defendant then steps forth, answers the accusation, and endeavours to ridicule his opponent in like manner; all which is corroborated with the united chorus of his party; and the laugh changes sides. In the same odd manner the plaintiff replies; the defendant rejoins; with the most cutting things they can think of, only there must be no mixture of rudeness or passion. The company at large constitute the jury; the victory is publicly declared; the delinquent endures the punishment of exposure, and the parties become friends.

These simple people do not like to contradict, interrupt, or outbawl one another in discourse; they have not a single word in their language by which to utter abuse or cursing. They laugh at the formalities and compliments of the Europeans; at a man's uncovering before his superior in rank; and wonder to see a master strike or maltreat his servant. They discover not the least trace of obscenity in their conversation; and on observing the foreigners immodest or prophane they stood amazed, and knew not how to account for it, but by saying "these people have lost their understanding; the mad waters," *i. e.* the strong liquors, "have made them insane." So amiable appear these people, amidst their darkness and superstitions, when we survey them in the most favourable point of view. On the other hand, there are many exceptions to this general description.

It sometimes happens that when the father of a family dies, the poor forlorn widow has no near relations; she lies on the ground with her children about her, bewailing the loss of her husband, almost to distraction. Guests of an evil description pretend to condole and sympathize with her in her afflictions, but at the same time clandestinely bear away the effects of her late husband. She perhaps endeavours to ingratiate herself with her greatest plunderer: he ought to maintain her, according to the usages of the place; but when he is tired of her, she and her children are again left helpless. If none want servants, or be disposed to protect them a little longer, perhaps they protract life by eating fishes, muscles, and sea-grafs; but, finally, they must starve or be frozen to death, having neither clothing nor lamp-oil. If the orphans survive, perhaps they are unfurnished with a kajak, and, what is still more unpromising, they are uninstructed in the difficult business of managing it: they must stay on shore, and join in the drudgeries of the women. If people on shore see a kajak overfet at sea, and the poor man has no relation, nor has particularly served them, they behold with insensibility,

bility, nay, with a certain degree of entertainment, how he struggles in vain to save himself: it is too much trouble to step into their kajak, and hasten to his help; and, should they be incommoded with the shrieks and cries of their female relations, they slip away.

The spirit of revenge seems to be as strong in these people as in the other American Indians; like them, also, they keep their dreadful resolutions inviolably secret, till an opportunity offers of wreaking their vengeance on those that have offended them; and their enmities are conveyed down to their children and grandchildren. When a murder is committed, the assassin generally perpetrates the deed at sea, in a treacherous manner, by oversetting the Greenlander in his kajak and drowning him, or by throwing a harpoon into his back behind. If the friends of the murdered man discover the assassin, they stifle their anger, nay, they do not so much as let a word about it transpire, for fear that he or his spies and accomplices might dispatch them too, to secure himself; yet they will not forget to avenge their friend's death when they meet the murderer alone, even though thirty years should elapse before they can effect it. They generally attack him on shore, declare the reason in a few words, then stone or run him through, and cast his body into the sea; or if they are very much provoked, they hew him to pieces, and swallow a bit of his heart or liver, because they think his relations will by that means lose their courage to fall upon them. Some poor creatures, for the sake of procuring themselves respect, or a livelihood among the people, pretend to the power of witchcraft: sometimes however they are blamed for having bewitched some person that has died: on this occasion the country will join to stone them; and they are thrown into the sea, or hewn to pieces. Sometimes, when such poor wretches find there is no possibility of escaping, they plunge themselves into the ocean, to elude the weapons that would hew them in pieces, and leave their dismembered carcase a prey to the ravens. However, if the person cut off leave any near relations, they endeavour to avenge the death; and thus the tragedy is continued in a prolonged series of murders.

Polygamy is not very common among them; yet some have more than one wife. When the women cannot be prevailed upon to marry by kind and courteous persuasions, they are compelled to it by force; and sometimes by blows. The matrimonial contract is not so irrevocable with them, but the man may put away his wife, especially if she has no children: this he does with little ceremony; he only gives her a sour look, marches forth, and does not return again for several days: she perceives his meaning directly, packs up her clothes, and removes to her own friends. The women before marriage are squeamishly shy: they would account it an affront or an injury in company, if a young fellow were only to offer them a pinch of snuff. The women that are repudiated, or divorced, from their husbands, sometimes turn prostitutes: and as for the married people, some are so shame-

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less, that if they can, they break the matrimonial obligation on both sides without a blush. When a mother dies and leaves a helpless babe behind her, if the father have no one to nurse it, he cannot endure to see the infant's distress; he buries it alive along with its mother: they are wrapped up in skins, carried to some high place, and covered with broad stones, to keep off the birds and foxes. Those also that become old and infirm, and have not friends to support them, are treated like the infant. Though they are generally honest among themselves, the indigent and lazy are sometimes on the watch for stealing, especially from unknown travellers; but if they can rob a foreigner, either by craft or force, they glory in the fact as a mark of their superior abilities; therefore the Europeans place no great confidence in them, because they have been cheated by them many times; nay, have even been decoyed ashore and then basely robbed of their goods, and afterwards murdered. Thus gloomy are the shades in the sketch of these people.

149. *Tartars, Laplanders.*] What has here been related, is peculiarly applicable to Greenland: the Americans, and the Tartars of Asia, however, who inhabit the same high latitudes, are, from their similar situations, put upon the same habits and manners of life. To procure themselves subsistence, they must necessarily be hunters, fishers, or fowlers; and in winter, they must betake themselves to their close and warm houses. From the little that we know of them, their conceptions or superstitions seem even grosser than those of the Greenlanders. But of all these nations of little people, the Laplanders appear the happiest, most provident, and most improved in the arts of life. The rein-deer, which the other thoughtless people have only sought to hunt and kill for immediate use, the Laplander has wisely reduced to domestication and servitude; and, in these creatures alone, he finds almost every thing his simple wants require: they feed him, they clothe him; with their skins he covers his tent; and of their skins he makes his bed; of these he makes his snow-shoes; and with these his sledge is shod; of their milk he makes cheeses, and puts the whey to immediate use, or boils it with wood of sorrel till it coagulates, and then keeps it under ground, in casks, or deer-skins, to be used as a delicacy in winter: he preserves also the blood to mix with the marrow as a sauce in spring: even their intestines, when dressed and boiled, make him a dish he highly esteems. He converts almost every part of this valuable creature to some use or other; their sinews make him bow-strings, springs for catching birds, and threads for sewing; their horns he sells to be converted into glue; their skins also, and their tongues, which are accounted a great delicacy, are sent to the southern parts of Europe, and procure him foreign toys and luxuries. This is not all, the rein-deer carries him in his journies; it is yoked to the sledge, which is extremely light, by means of a strap, which goes round its neck, and comes between its legs: the man guides the animal with a cord, which he fastens round the horns,

horns, and encourages it to proceed with his voice, and drives it with a goad. Some of the wild breed, by far the strongest, are found refractory, and often turn upon their drivers; who have then no other resource but to cover themselves with their sledge, and let the animal vent his fury upon that: but it is otherwise with those that are tame; no creature can be more active, patient, and willing. When hard pushed, they will trot nine or ten Swedish miles, or between fifty and sixty English miles at one stretch; but, in such a case, the poor obedient creature fatigues itself to death; and, if not prevented by the Laplander, who kills it immediately, it would die a day or two after. In general, they can go about thirty miles without halting, and this without any great or dangerous efforts. The food which this faithful domestic lives upon is moss; and while his fields are clothed with this, the Laplander envies neither the fertility nor the verdure of the southern landscape. Wrapt up warm in his deer-skins, he defies the severity of his native climate; and, in the midst of snows, fearless, and at his ease, he drives his herds along the desert, and calmly subsists where another would perish: his hardy cattle too, root up the frugal but favourite fare from under the white deluge, while his faithful dog prevents them from wandering. Caravans of these simple people diversify their long and tedious winter in excursions to the Finland fairs; and, on the return of summer, in their own land of fowls, they indiscriminately prepare for those exercises of the field which, in our land of liberty, are by law appropriated only to the man of wealth; but which, in theirs, supply plenty and variety to their tables for one quarter of the year.

SECTION XV.

A View of the Manners, &c. of the People of Europe; with a Comparison between London and the Country Parts of Ireland.

We may now come home to the polished nations of Europe, which is by far the least quarter of the globe. Its nations have now, for more than two thousand years, cut the greatest figure in the annals of mankind; its lands also bore the flattering title of Christendom, when Mahomet and his enthusiasts had spread their ravages and their doctrines over the nations which first heard the Christian name.

To attempt to exhibit the nations of Europe and their varied manners in one general sketch, may appear preposterous and vain; however, it is but consistent with the present design to attempt the description; and, as wonder-stricken travellers have generally

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furnished the scenery of the views we have already taken of the other parts of the earth, it should seem essential, in order to impartiality, that we should thoroughly divest ourselves of national habits and prejudices; nay, in fact, become as strangers, ready to admire and gaze upon every thing as new, while we survey the manners of those renowned nations.

Leaving, therefore, on the east the followers of Mahomet, the Othman race, or Turks, of Asiatic dress, extraction, and manners, the Europeans seem strikingly distinguished from the rest of the world in their advances in arts, science, and commerce, and in their nationally professing Christianity. Their profession and their improvements, together with colonies of themselves, they have disseminated to all the different quarters of the globe. Thus, acquainted with the peaceful and benevolent doctrines of the Christian religion, and in possession of arts, which enable them to elude many of the calamities to which improvident and less improved nations are often exposed, how peaceful, how refined, how happy, may we suppose this distinguished race of the sons of Adam to be, above the rest of mankind! The nations of Europe, however, on an impartial survey, will be found in their manners of life, and in their enjoyments, much like other men.

150. *Arts and Sciences, Manners, &c.*] If we sweep round their coasts, we shall find their ports crowded with vessels, and the produce and luxuries of every climate upon earth landing on their quays. Ashore are heard the hammer and the axe of the mechanic, and in the fields the voice of the husbandman. Water, air, and fire, are called upon to impel their massive machines, their engines, or mills, and alleviate their labours; while the smaller works of the handicraft, the artist, and man of letters, supply many little conveniences and elegancies never dreamt of among nations unacquainted with nice arts. That little instrument, the watch, which he carries about him, informs the European how time is going on: by the help of printing, he can have in his pocket records of science unknown to the learned philosophers of the antients: by this he learns what is going on in every quarter of the globe; and, in fine, he dips his pen, and converses with his absent friends, though widely dispersed over the face of the earth.

The Europeans generally begin their week by devoting the first day to public worship; other seasons are also appointed for similar purposes; the seventh day closes their labours, and their week is done. As asylums for the weak and helpless, the sick and the poor, they erect buildings like palaces, and liberally endow them; or they support them by frequent charitable contributions: yet, amongst these very people, evils exist as in other parts of the world. As first on the list, we may reckon the horrid practice of war, with the ills it induces. The nations of Europe, though professing to be Christians, quarrel with each other, and decide their disputes by force of arms: though there are but, comparatively, few immediately engaged in this bloody business, yet the evil spreads far; individuals,

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remote from the field of battle, talk over its tumults and carnage unconcernedly; or, partial to the arms of their own particular nation, or their own particular party, with a degree of enthusiasm, rejoice in their success, and wish destruction to those who oppose them.

In Europe there are gaols crowded with criminals, and on these are inflicted the punishment of whips, racks, gibbets, and fire. In Europe, notwithstanding its inhabitants are so improved, there are many of them suffer poverty, and some die through want. If their improvements were confined to the good of society, surely many of these evils would hardly be known: but they have formed themselves unreal and artificial wants, and, for the supplying of these, society is oppressed. It is far beyond the design of the present undertaking to attempt a catalogue of the luxuries and superfluities of the nations of Europe. It may certainly be accounted an evil, if these take hands from useful labour; and that they do, may appear evident, if we but look about us. It is a commonplace argument in favour of superfluities, that the luxuries of the rich give employment to the poor; but if these vanities had not a tendency to corrupt our minds, and to mark out distinctions which flatter pride, the bane of human kind; if they even did not naturally produce these evils, let the useless attendance bestowed on the wealthy be but given to the labours of the plough, or loom. Can any thing be more evident than that, under Providence, the good things of this life would more plentifully abound, and the oppression of the poor be considerably alleviated? In fact, it appears, wherever the Europeans have scattered desolation and wretchedness about them, it has been from motives of avarice, or for the gratification of unreal wants.

Despairing of delineating, with any degree of accuracy, the distracted, various, or complicated scene which Europe exhibits, we may close this very short sketch by a few remarks that naturally offer themselves, and which, if they be just, must necessarily be interesting. While it requires but little discernment to see the misconduct of the tyrants of the earth, who sacrifice the peace of society for their own gratifications, or for their aggrandizement, the tyranny of custom or of fashion is often more oppressive, though thoughtless or unconcerned, we pass along insensible of its influence, and unconscious of its presence. In reading of the unlimited power of despots in countries that are distant, or in ages that are past, and in considering the state of Europe during the feudal times, when the division of the people was into barons or gentlemen, and vassals or villains, the manners of the present day seem gentle and humane in the comparison; we seem to feel relief in contemplating the present system of things, and are induced to admire commerce and refinement. But has the happiness of mankind been hereby promoted! Perhaps, with all the reforms it has introduced, the accompanying evils have nearly preponderated.

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to acquire dispositions less hospitable. The barons obtained their possessions by inheritance; the merchants, by rapacity, or by the continued earnest pursuit of gain: perhaps striving, through a long series of years, to undersell competitors, and, in consequence of this, bearing hard upon the workmen, and keeping down their wages as much as possible. The barons spent most of their time at their castles or mansions; and their horses and servants, except on the state-days, were employed in husbandry. The commercial aristocracy is engaged in a continual routine of extravagance; and their horses and servants seem only to live for their accommodation, or for the gratification of their vanity.

In the feudal times, each man took a fixed station, and was at rest: he had no power of advancing himself or his family, if he were poor; if rich, he must continue so, as he had not the privilege of disposing of his estates. Now the incentives to action are perpetual: and there seems to be no end to the restlessness produced; all appear to be pushed on by an insatiable thirst for gain. From all the situations in society, between the highest and the lowest in wealth and power, the people look down on those whom they account their inferiors; they cringe to those who are above them.

According to the fashion of the present day, it is reputable for a man to live according to his means, not according to his necessities; and indeed, he is often respected in proportion to his extravagance. From the highest to the lowest, we seem to be tyrants and slaves; and, in our mutual intercourse, under so depraved a system, we corrupt and are corrupted. The laws of the country, and the prejudices of the people, even our language, manner of dress, and all our ceremonious habits, tend to keep up the evil.

By the luxurious and extravagant manner of life, which it is the fashion of the present day to consider reputable, society is oppressed, and the social virtues are destroyed: but, chiefly, the affections of love are chilled in their infancy, are nipped in the bud. How few are there that have entered into matrimony, who can say that their first movements towards that state were made without embarrassment! and can things be upon a right footing while this continues to be the case? According to the present corrupt system of things, it is disreputable for the women to declare their affections for the men. How dreadful in its consequences is this grievous yoke of tyranny, this galling chain of fashion! They must even dissimulate when applied to; and the officiousness of selfish parents and relations (for the affectionate relatives and friends, who feel most anxious and tender solicitude, and offer counsel on these very interesting occasions, cannot be included under the epithet of selfish) the airs which they assume, are enough to damp the ardour of a bashful youth. We know, we have all felt that the Supreme Being permits us the exercise of will, does not drag us with coercive chains, points out to us what is right, and would enable us to fol-

low it, if we would but submit: but parents often assume a power greater than that which the Creator exercises over us. In the state of childhood they use stripes; and in that of mature age, restraints. Thus, from the cradle to the grave, we are in a state of bondage; for when at last we come to act for ourselves, and through all the succeeding years of life we feel ourselves fettered with the trammels of fashion, we are such creatures of art; our native genius and temper are so distorted and warped by education or manners, they are disguised to the world, they are hidden from ourselves.

It is usually asserted that Christianity is the religion of Europe. Its inhabitants generally call themselves by this name; but if we could entirely divest ourselves of prejudice, might we not see, might we not lament, that we fall grievously short of the true principle of Christianity? The esteem of man is generally the object of our pursuit; the consciousness of his presence is the awe-impressing principle which directs and guides us; the expectation of his notice the grand stimulus, or motive of action. Oh for relief from this slavish and corrupting principle! this distracter of society! this tormentor of individuals!—Oh that we could see in every man a fellow, an equal! that we could sincerely and heartily be conscious that no man on earth, however exalted his station may be, was our superior.

It is curious to observe the different effects of light, in certain circumstances, on the spirits of animals. The remark may provoke a smile in some, as insignificant, or, perhaps, ludicrous, but cannot fail to be interesting to the compassionate mind; and it is not entirely foreign to our present subject. The feeble tribes of animated creatures, and those whose enemies are numerous, appear to regard the light with different feelings, according to their different habits of evasion. The fleet creatures, which usually find safety in flight, as the feathered tribes and winged insects, and the animals which are swift of foot, rush into open day, or make for the greatest light when attacked or alarmed; while those which find refuge in darksome recesses, as the vermin and reptiles, and insects without wings, as naturally turn their eyes from the light, and make for the wall, or for holes, or retreats. These latter effects seem hardly less striking in large cities, which are altogether scenes of art, on the feelings of man. If he cross the threshold of the door, if he step out into the street, in any thing like deshabille, or under any unusual appearance, he is no longer the same man that he was in his parlour: there the sloven, or the newly-molten creature, sat at his ease; coming into the street, he feels conscious of the presence of the people; he feels their eyes to be upon him; he is ready to shrink within himself, if he appear under any tattered form, or if he have even put on new finery, unless in the latter instance he swells or rises in self-complacency. These are habits impressed on us from our infancy.

While the manners, already described, are in general destruc-

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rational, for a young couple to abide in a parent's house till, their children becoming numerous, they should have occasion for more room? Then they might take a house, and fill it; and both father and mother, perhaps, find assistants in their children. How much more beautiful would be the sight of a young family going off to form a new hive, than the present cheerless way of the lone couple, if we may use the expression, setting off into an empty house, to take upon them the new-fangled and important airs or manners which they are to practise when set up to see company! but when it would be yet easier, more congenial to their feelings, and more productive of their happiness, to mingle with their younger brethren and sisters, and, after a while, with their own little ones, who might hereby escape stripes, while the young parents escaped restraints; escaped, till more advanced age at least, the trammels of distorted fashion, and the toils necessary to keep them up. Moreover, the aged people would hereby be solaced with the company of their little grandchildren, would tend them with delight, and would watch their little wants, and meet their wishes more sollicitously than even the parents themselves. Is not the superior fondness that they shew for the little ones the language of nature? and does it not shew, in unequivocal characters, that the present system of things is distorted and unnatural?

151. *Remarks and Reflections.*] Having now taken a general, tho' very slight survey of the nations of the earth, as they occurred in our imaginary tour round the globe, we may again set out in a similar way; and, as we pass along, take a prospect of the lower orders of the creation, as variously diversified in the different regions of the earth: however, before we quit this most important part of geography, the description of the human race, a few reflections, that naturally present themselves, may, perhaps, here appear becoming, rather than superfluous and impertinent:—We have already seen, in the accounts that travellers have furnished, that there has no nation run so wild, but its history generally affords also a view of something that is amiable, in the midst of all its rudeness and superstitions; and were wonder-stricken travellers still better acquainted with the manners of the people they have described, and were they more divested of national prejudices, we should likely still hear more of what is agreeable. On the other hand, we may find many evils prevail among nations which make the highest religious profession, and which are generally accounted the most civilized; what delicacy then does it require to describe the manners of men, or to draw national characters! and how carefully ought we to remember, that *general descriptions can never be universally applied*. In every nation there appear happy exceptions to barbarous and unbecoming customs;—among every people woful declensions from manners that are virtuous, and principles that are sublime.

SECTION XVI.

*Different Appearances of the Earth in different Climates ;
Diversity of Animals, their Manners, &c.*

We may now survey the lower orders of the creation, as they are variously diversified in the several quarters of the globe ; and as man is highly interested in these, we may often observe him, in a conspicuous point of view, in the varied picture ; we may see how his habits and manners are often influenced by his particular situation ; how he avails himself of the advantages it affords him ; and how he evades the inconveniences to which it exposes him ; and something similar may sometimes be observed in our humble partners in the creation, the beasts and birds. As the different parts of our terrestrial ball receive the rays of the sun in various directions, and consequently its heat in very different proportions, they accordingly put on very different appearances : a polar prospect, and a landscape at the equator, are as opposite in their appearances as in their situations.

152. *Polar Regions.*] The polar regions, that receive the solar beams in a very oblique direction, and that continue for one-half of the year in night, present a picture bleak and hideous. The ground, which is rocky and barren, rears itself in lofty mountains and inaccessible cliffs, and meets the mariner's eye at even forty leagues from shore. These precipices, frightful in themselves, receive an additional horror from being constantly covered with ice and snow, which daily seem to accumulate, and to fill all the valleys with encreasing desolation. The few rocks and cliffs that are bare of snow, look, at a distance, of a dark brown colour, and quite naked ; upon a nearer approach, however, they are found replete with many different veins of coloured stone, and here and there spread over with a little earth, and a scanty portion of grass and heath. The internal parts of the country are still more desolate and deterring. In wandering this solitude, some plains appear to be covered with ice, that, at first glance, seem to promise the traveller an easy journey ; but these are even more formidable and more unpassable than the mountains themselves, being cleft with dreadful chasms, and everywhere abounding with pits that threaten certain destruction.

The seas that surround these inhospitable coasts are still more astonishing, being covered with flakes of floating ice that spread like extensive fields, or that rise out of the water like enormous mountains : these, which are composed of materials as clear and transparent as glass, exhibit a variety of colours, and assume many strange, phantastic, dazzling, and sometimes dreadful appearances. Some look like large islands, with plains, valleys, and hills, which often

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tive of the harmony of society, the consequences seem most grievous in the restraints hereby imposed on the sexes. It is curious but afflictive, to observe how, by the perverse system, or the wrong estimation of things, the objects which are, or ought to be, of smaller moment, are preferred to those of greater concern. What judgment is shewn (and it is not to be censured, perhaps the exercise of it is commendable) in the conducting of business! How well the trader will judge of the advantage of certain situations, of the methods of inducing customers to call on him! He feels himself happy in having his family about him; but he little considers, perhaps, that he is growing old, and cannot stay with them long.

But, in the present order of things, how shall the obstacles which lie in the way of marriage be removed? Prejudices cannot be done away at once: we cannot but in some degree accommodate ourselves to them. Shall the parent endeavour to get off the children like articles of trade? If he see a youth whom he esteems and loves, and would wish to call him by the name of son; if he manifest that wish, the youth must have superior judgment and virtue if he does not turn away from such a hint with dislike. Such a wreck of good sense and good manners has taken place in this quarter of the earth! Perhaps there is nothing so well adapted to do away these evils, these desolating evils, as the promotion of hospitality, of fellowship, or good neighbourhood. If parents heartily encouraged this; if they were but more willing to sacrifice the mammon of unrighteousness to the duties and gratifications of social life, the children would naturally become fond of each other in their early and innocent diversions, and, in the blooming season of youth, would affectionately and piously enter into the solitudes and pleasures of married life, instead of waiting till the tender feelings of love were obtused or destroyed, by the multiplied cares and toils which attach themselves to our complicated manner of life, and the man takes the woman upon a dead calculation of profit and loss. Were parents but hospitable or social, it would follow, as a consequence, that mankind would increase and multiply, instead of the present unnatural system of celibacy prevailing.

This is not mere declamation, unfounded on fact. To prove the assertion, let us just glance on the most opposite views of society which these countries afford. In the two islands on the west of Europe, where that language is spoken which is now before the reader, there is a very great disparity in the condition of the inhabitants; their manners also differ. In the capital of England we see a prodigious exhibition of wealth. London seems to answer the description of Tyre in antiquity: she sits a queen on the waters; her merchants are the great ones of the earth. Notwithstanding the myriads of the inhabitants, there seems to be enough of provision for the whole: if it were fairly distributed, enough and to spare. Yet, here, from the isolating policy which prevails, causing each family to live only to itself, the humanizing business of marriage goes very slowly forward; and the number of the inhabitants

is kept up by a continual influx of people from other parts. In the parlours, the children are kept up like nuns or friars; and in the kitchens, the servants. In the country parts of Ireland, where the people seem to be the most neglected, or the most oppressed; where they have their little farms at rack-rent; where they find it difficult to live; and where a pampered Londoner might nearly starve there, from their social dispositions and hospitable manners, marriage is much encouraged, and early entered into. In casting our eyes over the Hibernian landscape, we are struck with the idea of an unimproved or neglected state of agriculture. The cabins, or cottages, scattered over the country, or huddled together in an irregular way, do not impress us with a notion of the elegancies of life; hardly allow us to think that their inhabitants enjoy the common accommodations of it. We are ready to say, how is it to be accounted for, that Ireland, an '*officina gentium*,' supplies so many inhabitants to other countries? The scene before us has the appearance of a country but very thinly inhabited. But when we see how the cabins are peopled, the swarms of children at their play, the rows of lads and lasses in the fields with their shovels, turning up the soil, and depositing their favourite food, the potatoes, or casting up the turf from the bogs, for fuel; when we see them returning from their chapels in crowds, and loitering away the afternoon of the day of rest in companies, or enduring a greater portion of fatigue at their sports than that of their ordinary labour through the week, we see that the people are sociable, and early marriage is hereby promoted.

If they suffer by the extortion of under-landlords, at a distance from the real owner, the absentee, who does not vouchsafe to take the trouble of knowing their situation; if they have various other oppressors, at least the system of equality prevails among themselves; tyranny is not extended here, as in commercial cities, through numerous orders of men, oppressing and oppressed; they are fellow partakers of the same hard lot in life; but they are equal, they are happy. They are also hospitable to strangers; by salutations, benedictions, and friendly and officious enquiries and services, they welcome the coming guest; and it seems to be their delight to help the traveller along his way.

Besides the obstacles already mentioned, which lie in the way of marriage, the unsocial custom that prevails, of young ones separating from the parent family on marriage, seems to be a very great impediment. It is well known that the present system of society is so complicated, that it requires no small degree of skill and exertion, or, we may truly say, of craft, to fill almost any station in life; yet it is expected that the youth shall be possessed of such accomplishments before he enters on marriage. Now he can hardly acquire the address to carry himself with sufficient skill and prudence till he has attained many years; and, in the mean time, if he be not married, it is probable that he may lose those tender feelings necessary to that state, and the covenant may hereby become a bargain little different from prostitution. Would it not be better, more natural, more

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Iron are quickly eaten with rust; even the instruments, knives and keys, that are kept in the pocket, are nevertheless quickly encrusted; and the great guns, with every precaution, after some years, become invalid.

Upon the approach of our summer-months, or the winter ones, as they are called under the Line, the sky, from a fiery brightness, begins to be overcast, and the whole horizon seems wrapt in a muddy cloud; mists and vapours still continue to rise, and the air, which so lately was clear and elastic, now becomes humid, obscure, and stifling: the fogs become so thick, that the light of the sun seems in a manner excluded: nor would its presence be known, but for the intense and suffocating heat of its beams, which dart through the gloom, and, instead of dissipating, only serve to increase the mist. After this preparation, there follows an almost continual succession of thunder, rain, and tempests. During this dreadful season, the streets of the cities flow like rivers, and the whole country wears the appearance of an ocean; the whole sky all around seems illuminated with unremitted flashes of lightning; every part of the air seems productive of its own thunders, and every cloud produces its own shock; the strokes come so thick, that the inhabitants can scarce mark the intervals; but all is one unremitted roar of elementary confusion. When these terrors have ceased, with which however the natives are familiar, meteors of another kind begin to make their appearance. The intense beams of the sun, darting upon stagnant waters that generally cover the surface of the country, raise vapours of various kinds, which give birth to balls of fire, or floating bodies of it: these, from their accidental forms, rather than any real difference between them, receive the different names of the draco volans, or flying dragon: the *ignis fatuus*, or wandering fire; the fires of St. Helmo, or the mariner's light, &c.

At sea, the water-spouts are seen in all their terrors, and large enough to dash ships to pieces; and in these parts of the world tempests put on the most dreadful forms. The Cape of Good Hope, as well as many islands in the West Indies, are famous for their hurricanes; and that extraordinary little cloud, which is said to produce them, but which is perhaps rather the vapours (that happening to lie within the sphere of the growing tempest) that have been condensed as in the vortex of a whirlwind. This cloud appears, when first seen, like a small black spot, on the verge of the horizon, and is called by sailors the Bull's Eye, from being seen so minute at a vast distance. All this time a perfect calm reigns over the sea and land, while the cloud grows gradually broader as it approaches. At length, coming to the place where its fury is to fall, it invests the whole of the horizon with darkness. During all the time of its approach, an hollow murmur is heard in the cavities of the mountains; and the affrighted animals, sensible of its approach, are seen running over the fields to seek for shelter. The violence of the blast is dreadful when it begins. The houses in those countries, which are made of timber, the better to resist its fury,

fury, bend to the blast like ozers, and again recover their rectitude. The sun, which but a moment before blazed with meridian splendor, is totally shut out, and a midnight darkness prevails, except that the air is incessantly illuminated with gleams of lightning, by which one can easily see to read. The rain falls at the same time in torrents; and its descent has been resembled to what pours from the spouts of our houses after a violent shower.

The Europeans, when they first visited these regions, were ignorant of its effects and the signs of its approach; their ships, therefore, were dashed to the bottom at the first onset, and numberless were the wrecks which the hurricane occasioned; but at present, being forewarned of its approach, they strip the masts of all their sails, and thus patiently abide its fury. These hurricanes are common in all the tropical climates. On the coast of Guinea they have frequently three or four in a day, that thus shut out the heavens for a little space, and when past, leave all again in its former splendor. They chiefly prevail on that coast in the intervals of the trade-winds, the approach of which clears the air of its meteors; and in general, when they cease, these irregular tempests are found to exert their fury. All this is terrible: but there is a tempest known to these climates still more formidable: this is called, by the Spaniards, a tornado. As the former was seen arriving from one part of the heavens, and making a line of destruction, so the winds in this, seem to blow from every quarter, and settle upon one particular place with such fury, that nothing can resist its vehemence. When they have all met in their central spot, then the whirlwind begins with circular rapidity; the sphere every moment widens as it continues to turn, and catches every object that lies within its attraction: this also, like the former, is preceded by a flattering calm: the air is everywhere hushed, and the sea is as smooth as polished glass.

All along the coast of Guinea, for about 2000 miles, navigation is difficult, upon account of these tornados and intervening calms; among which, whatever ship is so unhappy as to fall, its situation is truly alarming. In the torpid repose of all the elements, the solitary vessel is sometimes obliged to continue, without a single breeze to assist the mariner's wishes, except these whirlwinds, which only serve to increase his calamities. This part of the ocean is therefore avoided.

In Egypt, a kingdom so noted for its fertility and the brightness of its atmosphere, the south winds blowing from the continent during summer, are so hot that they almost stop respiration; besides which, they are charged with such vast quantities of sand, that they sometimes darken the air, as with a thick cloud. If they happen to continue any length of time, they produce epidemic diseases, and are often followed by a great mortality. In the summer also a very dangerous wind prevails all along the coasts of the Persian Gulph, which the natives call the Samayel. This terrible blast, which was perhaps the pestilence of the antients, instantly kills those that it involves in its passage, whether beasts or men. It is said to frequently

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rear their heads more than a thousand feet above the level of the sea, and sink three hundred fathoms under water. Some look like arches, rocks, castles, towers, and spires; and these floating about, give the whole scene the appearance of enchantment and illusion. Some look like ships in full sail: and people have often given themselves the fruitless toil to attempt piloting the imaginary vessel into harbour. This may appear incredible; but when it is considered that the ships in those seas, rigging and all, are sometimes all over incrustated with ice, we may better account for so extraordinary a mistake.

In the arctic regions, the meteors are also seen under a thousand strange and romantic appearances, astonishing to travellers, though, from their frequency, disregarded by the natives. "Nothing more surprised me, or entertained my fancy more," says David Crants, in his History of Greenland, "than when on a fine warm serene summer's day, the Hookoernen, or the islands that lie four leagues west of Good Hope, presented a quite different view from what they have naturally. We not only saw them far greater, as through a magnifying perspective glass, and plainly descried all the stones, and the furrows filled with ice, as if we stood close by,—but when that had lasted a while, they all looked as if they were but one contiguous land, and represented a wood or tall cut hedge; then the scene shifts, and shows the appearance of all sorts of curious figures; as ships with sails, streamers, and flags, antique elevated castles, with decayed turrets, storks nests, and a hundred such things, which at length retire aloft or distant, and then vanish: commonly, a couple of hours afterwards, a gentle west wind and a visible mist follow, which puts an end to this *lusus naturæ*." This illusion seems to proceed from compressed and subtle vapours, intervening between the objects and the eye, and acting like different lenses or glasses.

It is perhaps owing to these different vapours that the coasts of Greenland, which are not themselves enormously high, are seen to the amazing distance, sailors say, of near sixty leagues. They are at first seen as if raised in the sky considerably above the horizon: as they are approached, they appear to be lower by degrees, and settle in the water. In the polar regions the frost often makes the sea smoke like an oven. When the mist congeals in the cold air, the subtle icy spicula may be discerned like fine needles, or glittering atoms: it seems to be condensed mists, or clouds of this kind, that reflect back the images of things on earth, like mirrors; and under the name of the blink of the ice, give notice to the mariner at a considerable distance, by glistening, that the ice lies below, when otherwise he might have dashed his vessel to pieces against it. In these regions of mists and fogs, the ærial, or watery meteors of every kind, are frequent. The solar rainbow is often different from ours; instead of a pleasing variety of colours, it appears of a pale white, edged with a streak of dusky yellow; the whole being reflected from the bosom of a frozen cloud. A lunar rainbow also is often seen, of a pale white, striped with grey; parhelii, parhelenæ, and

and haloes, are also frequent here; and balls of fire are seen shooting through the air. Sometimes whirlwinds happen that draw up water-spouts from the sea, and hurricanes that drive the sea-water upon land, and scatter it about like snow; dust, stones, and earth are torn from the ground, and mounted up in the air; the houses of the poor natives quiver and crack; the tents and lighter boats are swept away. However, neither storms nor sudden rains are very frequent here; the lightnings flash with little or no noise, and the northern lights, which strike the nations of Europe with portentous terror, serve to cheer these people during their tedious winter, and light them to their business or their sports. The aurora, the stars, and the moon, which, when at full, keeps up for days together in the winter; these, their reflection from the ice and snows, and the refracted rays of the sun, which are often seen to redden the tops of the mountains, afford a light sometimes sufficient to read by.

153. *Tropical Climates.*] It is in the torrid zone the meteors and tempests assume the most terrific appearances; and it is there their effects are by far the most dreadful: the landscape also differs from the prospect of the polar regions. In the countries under the Line, the sun darting its beams directly downwards, the lighter soils are burnt up into extensive sandy deserts. On the other hand, those tracks which are moist and fertile, teem with vegetation, even to a noxious degree. The grass rises to such a height, as often to require burning; the forests are impassible from underwoods, and so matted above, that even the sun, fierce as it is, can seldom penetrate. The banks, therefore, of the rivers often lie uncultivated, and serve as retreats for beasts, insects, and serpents. The smell of some of the plants is so powerful, that it is hardly to be endured; and European adventurers, that have sailed up the Senegal, ascribe the unwholesomeness of the voyage to the vegetable vapour. At the same time, the beauty of the prospects these climes afford, exceeds description and the utmost art of the pencil. A spacious glassy river, with its banks here and there fringed to the very surface by the mangrove-tree, that grows down into the water, presents itself to view, lofty green plants, and the most gaudy flowers; beasts and animals of various kinds, that stand upon the banks of the river, and, with a sort of wild curiosity, survey the mariners as they pass, contribute to heighten the scene.

The different temperature of the air at the poles and the equator, produce very different effects. In the cold arctic regions, animal substances are scarcely ever known to putrefy; and meat may be kept for months without any salt at all. On the contrary, in the tropical climates, such are the putrescent qualities of the air, that white sugar will sometimes be full of maggots; drugs and plaisters lose their virtue, and become verminous. In some places, they are obliged to expose their sweetmeats by day in the sun, otherwise the night air would quickly cause them to putrefy. Silks and cloths, if exposed to the air, soon lose their colour; copper and iron

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assume a visible form, and dart along the surface of the country in a kind of bluish vapour. The natives, not only of Persia, but Arabia, talk of its effects with terror; and their poets have not failed to heighten them, with the assistance of imagination. They have described it as under the conduct of a minister of vengeance, who governs its terrors, and raises or depresses it as he thinks proper. These deadly winds are also known along the coasts of India, at Necapatan, Masulipatan, and Petapoli; but luckily for mankind, the shortness of their duration diminishes the injuries that might ensue from their malignity.

But of all those terrible tempests that deform the face of our globe, and repress human presumption, the sandy tempests of Arabia and Africa are perhaps the most terrible, and strike the mind with the greatest awe. To conceive a proper idea of these, we are by no means to suppose them resembling those whirlwinds of dust that we sometimes see scattering in our air, and sprinkling their contents upon our roads or meadows. The sand-storm of Africa exhibits an appearance more like a troubled sea. As the sand is excessively fine, and almost resembles the parts of water, its motion entirely resembles that of a fluid; and the whole plain seems to float onwards, like a slow inundation; the body of sand thus rolling, is deep enough to bury houses and palaces in its bosom. Travellers, who are crossing those extensive deserts, perceive its approach at a distance, and in general have time to avoid it, or turn out of its way, as it generally extends but to a moderate breadth: however, when it is extremely rapid, or very extensive, as sometimes is the case, no swiftness, no art can avail; the pilgrims and the merchants, their elephants, and their camels, with all their attendants, find one common tomb under the deluge of sand.

The rivers that have their source in the torrid zone, are the largest in the world; and, as the rainy seasons there are periodical, the rivers have their stated inundations, which deluge whole countries, and drive the inhabitants to the hills. Compared with these, the rivers near the pole are but as brooks or rivulets. The mountains also on the equator, are the loftiest in the world; much of the magnificence of the hills, near the poles, is only seen through the deceptive medium of vapours and fogs; the mountains on the Line are known to rise three miles perpendicular above the bed of the ocean; and those who climb them, see meteors which never appeared in the plains below. When the traveller has ascended above the regions of storms, and, as is frequently the case, sees the clouds below him, and hears their thunders rolling quite beneath his feet; from this airy height he beholds the rainbow, not merely like a splendid arch reared in the skies; he sees the shining circle complete, sweeping down into the vallies, as far beneath his feet as it rises above his head: from this romantic situation, he sometimes sees the shadow of the mountain projected upon the body of the air or mist; and, on an opposite cloud views his own image, as in a looking-glass,

looking-glass, but surrounded as with circular rainbows. It is remarkable, if there be a number of people in company in such a situation, each sees this beautiful and splendid illusion, with regard to himself, and not that relating to others; or he sees only his own shadow, adorned as already described. The plains near the Line are also vast and extensive; and he who traverses these, knows the benefit of a water-brook, and of the shadow of a rock in a desert and weary land.

154. *General Observations on the People.*] In contemplating these opposite extremities of climate, how naturally are we led into flattering reflections on the happy temperature of our own. In our happy land the mountains arise and improve our prospects; their brows are clothed with verdure, and their summits collect enough of waters to cool and diversify the landscape below with rivulets and streams, and to answer the purposes of manufacture, navigation, and commerce, without deluging the plains, and sweeping off the inhabitants. Here also the meteors put on a kind and friendly appearance; the rain falls in refreshing showers, to fertilize the earth; our snows afford a kindly protection to the ground from the rigour of more piercing frosts; and even our thunder and our tempests serve to purify our atmosphere. On the banks of our rivers, and in our forests, we need neither fear the winding serpent nor the lurking crocodile, the prowling wolf, the shaggy bear, nor the still more fierce and cruel, the spotted savages of the torrid zone. Our landscapes are enlivened with animals of a very different kind; the bleating of flocks and the lowing of herds banish solitude from our walks, and sound the voice of plenty in our ears; they take their fodder from the husbandman, and give their dugs to the milk-maid; the horse rejoices in his strength, and retains some of his native fire; he paws in the valley, and bounds over the pasture; again, he hears the voice of his master, and gives his head to the reins. So beautiful are the prospects our land affords; yet, let it be remarked, a native of the Torrid Zone, or of the cold Arctic Regions, generally sees more beauty in his own native climes: this one skims along the desert upon his skates, or, drawn by his rein-deer or dogs, without restraint he hunts, fishes, and fowls. Again the tempest comes on, he betakes himself to his hut, and hugging himself in security, hears it blowing over his head. The African also delights to throw himself upon the exercises of the field; he endures the blaze of noon, which would sicken an European; and encounters animals of the forest, the glare of whose eyes might petrify one with horror; he plunges into the waters, and ventures singly to attack the monsters of the deep in their own native element; he evades the destruction of their yawning jaws, which would crush him to pieces and swallow him up; he plunges his knife into their bodies with mortal force; he fixes a noose round his enormous prey, drags it to the shore, and proclaims a feast to the village; or he draws an easy harvest from the soil he inhabits; and, stretched under the shade of the broad spreading plantain, or the fever-cooling tamarind, happy and at ease, and unenvious of other climes, he lolls away the severity of noon,

moon, or keen delight breeze, affords quarters are every man, he obliges nations a particular endures to. It is port; his suspended pities the ingly ren lives; wh the wind their lot hour adm accompra of pursui or conten while the towns an every fun been thei compariso little com life, and mind. T have to d people fo countenan tural a fit of life, a provision.

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noon, or drinks the refreshing juice of the unnumbered fruits of keen delicious taste that wave over his head, or that, fanned by the breeze, are scattered about him in profusion. Thus we see the pleasures of this life are more impartially distributed to the different quarters of the globe than might at first be imagined; and as there are everywhere inconveniences to be experienced, it seems happy for man, he generally prefers even of choice, those which his situation obliges him to inherit: this disposition seems not only to obtain with nations at large, but also among the different orders of men in particular countries. Thus the mariner braves the tempest, and calmly endures the complicated hardships his way of life exposes him to. It is entertaining enough to observe him, when safe into port; his perils, with the remembrance of them, are together suspended; he looks about him on the toils of the landmen, he pities their sufferings, and, as if he had made a discovery, he feelingly remarks, one half of the world knows not how the other half lives; while, on the other hand, the landmen hear the whistling of the winds, pity the poor sailor, and think how happy it is for them their lot has been cast upon land. Thus, the man of manual labour admires the patience and perseverance of the minute artist, the accomptant, and the man of abstruse learning; he recoils at the idea of pursuits so tedious, and drives, with pleasure, his team afield; or contentedly toils with the hammer, the hatchet, or the spade; while these lift up their eyes on the variegated landscape, and see in towns and villages, in every hedge and ditch, in every ridge and every furrow, the marks of labour and toil, which they think it has been their peculiar privilege to escape. If we carry still farther the comparison between the different orders of men, it will appear of how little consequence it is what may be a man's outward situation in life, and how the cause of pleasure or uneasiness mostly lies upon the mind. The governors of the earth finding in those with whom they have to do, only flatterers or slaves, and perpetually striving with the people for the extension or preservation of prerogative, have their countenances sometimes brightened with smiles, though in so unnatural a situation; while the brows of those who are in humble walks of life, are sometimes seen furrowed with cares and anxiety for the provision of the day.

To survey more generally the lower orders of the creation, we may imagine another sort of tour round the globe. In our view of the nations of the earth at large, we took our departure from the barriers of ice that surround the south pole; in this survey we may take our departure from the similar embarrassments that block up the much desired passage to the Pacific on the north.

On quitting the accumulated masses of ice that invest the arctic regions, the business of whale-fishing rises on the view. When the sun gives to Europe the advantages of summer, the northern icy seas are involved in the glare of continual day; there we may meet with European vessels all engaged in this hardy adventure; and there the little Greenlander equally as busy in their smaller craft.

155. *Whale Fishery.*] For the encouragement of this business, the British government gives a bounty to the vessels; it is regulated by the number of her boats: for every hundred tons the vessel is of burden, as measured by the officers of the customs, she carries a boat; to each boat there is an harpooner, and a crew of six or seven. When they are arrived at a proper latitude, they are all upon the watch; and some of them every now and then run up into the rigging for a better look-out. One boat, or perhaps more, at the same time keeps rowing at a distance from the vessel. When a whale is discovered by its spouting up water, the boat directly rows up to its side: the harpooner, who stands at the prow or bow of the boat, plunges his harpoon in its body; the boat immediately hurries off, for fear the fish should dash it in pieces by the flouncing of its tail; they then hoist a little flag, which when discovered on board, the signal is given, by calling out Fall. The other boats, which had been flung on the sides of the vessel, equipped with all their tackle, and ready to be lowered into the water at a moment's warning, are immediately let go; in leap the crews, and row off with all haste, to the assistance of the other boat. It is sometime before the whale seems to feel the blow; and the animal continues for a while motionless on the water; the shaft continues to pierce deeper and deeper into its body. At length, roused from its seeming lethargy, it darts down into the water with amazing rapidity. As it makes off, it draws after it with such velocity the line or cord of the harpoon, which is coiled up in the boat, that one man has to stand by with an axe ready to cut it, if it should entangle, lest the boat should be over-set, and they be all drawn down together; another, with a mop, keeps constantly wetting the edge of the boat, where the line runs over, to prevent its being set on fire by the friction of the rope; in the mean time the boat pursues, as fast as they can row, the direction of the line; the others follow, and the ship, as well as it can, for there are but very few left on board, brings up the rear. If the fish is not mortally wounded, he can flounce about in the deep for an hour, and draw a line of 2000 yards after it; in which case, the other boats hasten up and add their lines; and sometimes it gets off by diving under an ice-land; but commonly it is killed. The enormous animal has to come up to the top of the water to breathe: the crews are ready to renew their attacks; they dart their harpoon into its body; it again dives and rises again; they repeat their blows till the whale begins to be quite enfeebled and spent, when they plunge their longer spears into various parts of its body; the enormous animal expires, and the ocean seems dyed with blood. When the whale is dead, its belly turns upwards; then the boats tow it away, and it is lashed alongside of the ship; the first work is then to go with a boat into its jaws, and cut out all the whale-bone bangers very cautiously from its gums, with a long bending knife, and to draw them up at the capstan. This enormous beast of the ocean, which measures from fifty to eighty feet in length; which was found to reach two hundred feet, when the Biscayneers, in the beginning of the fourteenth century, first led the way into these

these seas, and the animal had time given it to come to its growth, and which Pliny reports to be 960 feet long, we may very naturally suppose must devour a great quantity of fish; its throat, however, is so strait, that it will not admit a fish larger than a herring to enter: it lives upon little insects that are sometimes seen floating in clusters on the surface of the water; and though the whale is a gregarious animal, being found in great herds, yet upon this minute food it acquires the most astonishing fatness. For feeding upon these, teeth would be unnecessary; in place of which it has in its upper-jaw the barders, blades, or whiskers, as they are called, for bruising or detaining its food: these compose what we call the whale-bone: they are of different lengths, like pipes of an organ; they shut into the under-jaw, which is a little hollow, as into a sheath; they run also along the tongue in a longitudinal direction. The great toothless, or proper Greenland whale, answers this description: there are other sorts that have teeth, and pursue their prey, and are more mischievous and savage in their habits. When the best of the barders are cut out, to the amount of many hundreds, they cut off the blubber from the tongue, and then proceed to strip the whole body of the fat, beginning both at the head and tail at once, and ending in the middle. The men that stand on the fish have sharp irons on their shoes, to prevent them from slipping: they cut off the fins and tail, to be converted into glue; and lastly, they strip off the fat on the middle part of its body, all the while removing the ropes wherein it is slung, as occasion may require. When the mountain of flesh is thus stripped of its fat, it loses its buoyancy; it is turned adrift; down goes the carcase or scrag into the deep, with a general and joyful huzza of the crew. In a few days it bursts and rises again, and serves to regale the fishes, birds, and bears with a profuse festivity. Some nations also are fond of the flesh of the whale; the people near the south pole, as well as those of Greenland, are extremely fond of it: the French seamen are now and then found to dress and use it as their ordinary diet at sea; but the English and Dutch sailors say it is hard, and ill tasted. The value of a single fish is usually about one thousand pounds.

The method of the Greenlanders in taking the whale, rather differs from that of the Europeans; both men and women compose the parties; the business of the women is to row, and to mend the seamens jackets and the boats whenever they are damaged. For good luck in the expedition, they dress in the best manner they can, supposing the squeamish whale would escape, or if dead, that it would sink, if any one wore dirty clothes, especially those wherein he had handled a dead corpse. When they see a fish, they make boldly up to it in their mens and womens boats, and strike it with several harpoons, to which bladders are hung, made of great seal-skins. These so encumber and impede the whale, that it cannot sink deep. When it is tired out, they dispatch it with their little lances. The men then creep into their sea-jackets, which are made of seal-skin, and answer as shoes, stockings, gloves, coat, and cap, all in one piece: these they fasten tight on their heads, and leap fearless

on the fish, and into the sea. The air in the jackets prevents their sinking, and enables them to stand erect in the water. They strip off the blubber, and cut out the bardsers. As every spectator may claim a share in the spoil, the scene is sometimes very disorderly: men, women, and children tumbling in heaps over one another; each with a knife, striving to secure a portion of the enormous prize. They consider the acquisition as a happy circumstance of their lives: they encamp beside it when drawn ashore, and seldom remove till they have left nothing but the bones.

156. *Polar Regions.*] Besides the spouting of whales, and the business of taking them, which present an interesting scene in the icy seas, the number of animals, the sea-fowls, seals, and bears, which are seen there in great numbers, enliven those dreary solitudes, and animate the chilling prospect. How these can endure the severity of the climate, and enjoy life in the regions of frost, will perhaps be one of the first of our wonders in contemplating these creatures. They find a plentiful supply from the fishes of the sea, and are armed against the cold with fat and a warm outward covering. It is remarkable, that the furs or feathers of many of the animals of the cold northern regions of the earth, become white in winter: we might imagine that, as the hair in the human species becomes white in old age, when there is a deficiency of the juices of the body, the severity of the cold had the same effect on these, and produced a premature or rather temporary old age in their coverings. However this be, as we find in the different orders of the creation, whether beasts, birds, or fishes, the attacks of the rapacious kind are obviated by the means of evasion, or the superior fecundity of those they prey upon; and thus the different species are preserved from generation to generation. Perhaps these animals are white, that they may be less easily distinguished from the snows, and consequently less exposed to the attacks of their enemies. The land-animals that find subsistence in the cold regions of the north are many, and of various sizes, from the hare to the elk, or moose-deer, which stately creature approacheth in size to the elephant, with its horns spreading out to the extent of ten or twelve feet; and from the cleanly little ermin to the ingenious beaver, the fox, the larger wolf, and the great white or Greenland bear, which reigns the unrivalled monarch in the icy mountains of Greenland and Spitsberg, as the lion is the tyrant of the burning deserts of Zaara. The great white bear, three or four yards long, seems to have acquired strength, hardiness, and courage superior to the rest of its species, whether we consider them as found brown in the Alps, or black in the forests of North America. These awkward-looking creatures are expert at climbing trees: in the hollows of them they sometimes make their dens, at the height of thirty feet from the ground. The Greenland bear robs the nests of fowls, and devours both the eggs and the birds; the deer also sometimes fall under his dreadful jaws. In the severity of cold he retires to his den, to pass away the winter in a sleep, or torpid kind of state, living upon his fat; for in this time his exuberance of flesh is wasted away. When the winter is past, and he feels again the calls

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of hunger, he rouses from his lethargy to seek for his prey. In this famished state he snuffs at a distance the habitations of men; he sometimes ventures on an attack upon these, but is commonly killed, and becomes the food of those whom he attempted to destroy; sometimes, however, his opposers, some of them, fall under his death-giving gripe. But it is from the water this formidable animal chiefly draws its sustenance; there it is seen floating on flakes of ice, many leagues from the land, in pursuit of seals and fishes; he even ventures to plunge into the sea, and attack the flouncing whale and the morse with its formidable tusks, in their own element; but he generally falls in the unequal conflict.

157. *Migrations of Birds.*] The variety of fowls and fishes that only appear on our shores, or in our seas, at particular seasons; their stated departures, and their regular returns, have employed much of the attention of the curious: these may be called animals of passage. Among fishes, the cod, the haddock, the whiting, the mackarel, the tunny, the herring, and the pilchard, are all of this kind. Besides quails and swallows, which seem at the close of our summer to depart for warmer climates, not without first conferring, in close debate, on the adventurous passage, and which, it is agreed, are seen at sea, both on their departure and return, in such prodigious flocks, as to appear like clouds on the horizon. Among birds we may reckon an innumerable quantity of water-fowl, with woodcocks, and a variety of other birds that make their appearance here in winter: these and the fishes generally visit us from the north. When uncultivated tracks of woods and marshes formed a considerable part of our islands, many species of birds, which now migrate, remained with us throughout the year. The great heron and the crane, that have now forsaken these countries, in former times bred familiarly in our marshes, and seemed to animate our fens: their nests, like those of most cloven-footed water-fowl, were built on the ground; the surrounding marsh defended them from carnivorous quadrupeds, and their own strength from birds of prey; but since these countries have become populous, and rural economy has increased, by a long series of alarms, they have at length been obliged to seek, during summer, some lonely habitation at a safe distance from every destroyer. These, and numerous other kinds, form those amazing flocks which annually repair to the dreary lakes and deserts of Lapland from the more southern countries of Europe. In those northern deserts, the lands of lakes and rivers, of swamps and mountains, covered with thick and gloomy forests, where the ground remains moist and penetrable during the summer, the woodcock, the snipe, and other slender-billed birds, feed at their ease; while the web-footed birds find more than sufficient plenty of food from the number of insects which swarm there to an incredible degree: there they perform the duties of incubation at their ease, and increase in security. We are not to be astonished, therefore, at the amazing numbers of fowl that descend from those regions at the approach of winter; numbers to which the army of Xerxes was but trifling in comparison; and which, Linnæus

has observed, for eight whole days and nights covered the surface of the river Calix. This migration from the north usually begins at the close of summer, when they quit their retreats, and disperse themselves all over the southern parts of Europe. On their first arrival, they circulate round our shores, and when compelled by severe frost, betake themselves to our lakes and rivers. Some indeed of the web-footed fowl, of hardier constitutions than the rest, abide the rigours of their northern climate the whole winter: but when the cold reigns there with more than usual severity, they are obliged to seek for more southern skies; so that the diver, the wild swan, and the swallow-tailed shelldrake, visit our coasts but seldom, and that only when compelled by the severity of their winters at home. It has often appeared a matter of astonishment, how animals, to all appearance so dull and irrational, should perform such long journeys, should know whither to steer, and when to set out upon such a great undertaking. What then shall we think of the still more distant migrations of the fishes?

158. *Migrations of Fishes.*] The unnumbered flocks of fowl that enliven the bleak and chilling prospects in the arctic seas, are sometimes seen posting away to the southward: fishes are their prey, and these they are pursuing. The shoals of fishes that annually come out from under the ice at the pole, and migrate towards the south, seem numerous beyond conception; and various have been the conjectures on the cause of their migration. It has been thought that they breed there; that the ice protecting them from the larger fishes, and the seas supplying a great quantity of the insect food, they multiply beyond expression; and that, on account of their numbers, they are compelled to seek for other retreats, as with bees from a hive. It has been imagined they are all engaged in evasion or pursuit; that the less fry only visit us as they are chased upon our shores; the larger sort, as they pursue. It has been conjectured, that they come on account of a deficiency of food in the icy sea; and it has been concluded, perhaps most rationally, that their adventurous migration is for the purpose of depositing their spawn in our warmer seas; their welcome visits seem stated and regular: accordingly the seasons for cod, mackarel, whiting, &c. are fixed and known; but how and when they return to the icy seas, or whether they ever return or not, seems one of the wonders of the deep, which the most skilful ichthyologists have not discovered. Of all migrating fish, we seem best acquainted with the adventures of the herring and the pilchard. The great colony of them sets out from the icy sea about the middle of winter, composed of such numbers, that if all the men in the world were loaded with herrings, they could not carry the thousandth part away. But they no sooner leave their retreats, than millions of enemies appear to thin their squadrons. The fin-fish and cachalot swallow barrels at a yawn; the porpoise, the grampus, the shark, and the whole numerous tribe of dog-fish, find them an easy prey, and desist from making war upon each other; while the unnumbered flocks of sea-fowl that chiefly inhabit near the pole, watch the outset of their dangerous migration, and spread extensive ruin.

In this exigence the defenceless emigrants find no other safety but by crowding closer together, and leaving to the outmost bands the danger of being first devoured; like sheep that always run together when frightened, each finding some protection in being but one of many that are equally liable to invasion. The innumerable company first divide into two great shoals; one body moves to the west, and pours down along the coasts of America as far as Carolina, and but seldom farther. In Chesapeak Bay the annual inundation of this fish is so great, that they cover the shores in such quantities as to become a nuisance. Those that hold more to the east, and come down towards Europe, endeavour to save themselves from their merciless pursuers, by approaching the first shores they can find; and that which first offers in their descent is the coast of Iceland. In the beginning of spring, upon their arrival on that coast, their phalanx, which has already suffered considerable diminutions, is nevertheless of amazing extent, depth, and closeness, covering an extent of shore as large as the island itself; the whole water seems alive; and is seen so black with them to a great distance, that the number seems inexhaustible. There the porpoise and the shark continue their depredations; and the birds devour what quantities they please. By these enemies the herrings are cooped up into so close a body, that by a shovel, or any hollow vessel being put into the water, they are taken up without any farther trouble.

Their descent on our coast is later in the year, about Midsummer. Their arrival is plainly announced by the number of gannet, the gull, the shark, and the porpoise. When the main body is arrived, its breadth and depth are such as to alter the very appearance of the ocean: it is divided into distinct columns of five or six miles in length, and three or four broad, while the water before them curls up, as if forced out of its bed; sometimes they sink for the space of ten or fifteen minutes, then rise again to the surface, and in bright weather reflect a variety of splendid colours, like a field bespangled with purple, gold, and azure. Among the conjectures on the cause of that extraordinary phenomenon, the *aurora borealis*, some imagined it proceeded from the reflection from these shoals; while others supposed it produced by the flames of burning mountains, till later discoveries accounted for it by electricity.

As the innumerable shoals fall on the coasts of our islands on the north, they are divided by the obstruction of the land, and pour down their supplies into our channels and bays, and along our opposite shores: they afford the natives a fresh and plentiful provision, and an article of commerce to remote and distant parts. As the fishes in the deep live by preying upon each other, the fecundity in the smaller kind seems amazing and incredible: a single herring, if suffered to multiply unmolested and undiminished for twenty years, would shew a progeny greater in bulk than ten such globes as that we live upon. Generally, whatever part of the ocean we survey, scenes of pursuit and evasion, similar to those already described, present themselves to view: those with the largest mouths and gullet attack and devour the larger kind; those whose mouths are less,

lie in wait for the smaller fry ; and even these chiefly subsist upon spawn ; and flocks of fowl, hovering on the waters, dart upon their finny prey and receive their supplies. The natives also, of almost every habitable coast upon earth, partake of the grateful tribute.

159. *Tropical Seas.*] In the tropical climates, the dorado is at once the most voracious, the most active, and the most beautiful of the finny region : its back is all over enamelled with spots of a blueish green and silver ; the tail and fins are of a gold colour, and all have a brilliancy of tinct that surpasses the pencil of the artist ; its eyes are large and beautiful, and surrounded with circles that look like shining gold. In the seas where they are found, these fishes are always in motion, and play round ships in full sail with ease and security ; forever either pursuing or pursued, they are seen continually in a state of warfare, either defending themselves from the shark, or darting after the smaller fishes. The flying-fish, more than all others, abounds in those seas, and as it is a small animal, seldom growing above the size of a herring, it is chiefly sought by the dorado, which being above six feet long, yet not thicker than a salmon, and furnished with a full complement of fins, cuts its way through the water with amazing rapidity. On the other hand, the flying-fish is furnished with two pair of fins larger than the body ; and these are moved by a stronger set of muscles than any other. The dorado is seen in this active pursuit darting after its prey, which will not leave the water while it has the advantage of swimming in the beginning of the chase ; but, like a hunted hare, being tired at last, it then has recourse to another expedient for safety, by flight : the long fins, which began to grow useless in the water, are now exerted in a different manner and different direction from that in which they were employed in swimming ; by this means the timid little animal rises from the water, and flutters over its surface for two or three hundred yards, till the muscles employed in moving the wings are enfeebled by that particular manner of exertion : by this time, however, it has acquired a fresh power of renewing its efforts in the water, and the animal is capable of proceeding with some velocity by swimming ; still, however, the active enemy keeps it in view, and drives it again from the deep, till at length the poor little creature is seen to dart at shorter distances, to flutter with greater effort, and to drop down at last into the mouth of its fierce pursuer. But not only in the deep does this little animal meet with its pursuers, the dorado, or dolphin, the fowls of the air seem also combined against it, so that its double powers appear to expose it to a greater variety of dangers ; for though it should escape from its enemies in the water, yet the tropic-bird and the albatross are forever upon the wing to seize it : thus pursued in either element, it sometimes seeks refuge from a new enemy ; and it is not unfrequent for whole shoals of them to fall on ship-board, where they furnish man with an object of curiosity. These are but a few of the observations that have been made on the inhabitants of the sea ; and it seems highly probable that man has drawn but a few from their watery beds ; and that there are numerous tribes of them in the secret recesses of the deep.

deep, with whose manners and forms he is utterly unacquainted; there, living for ages undisturbed, they may acquire dimensions of which we have no conception, and even exceed what has been told of the kraken looking like an island, or of the sea-serpent, with its long white mane, rearing its head or tail to an amazing height above the surface of the sea, and rolling its enormous folds on the water like great floating casks, or 'like an hundred dung-heaps that lie in a row on a field to be ploughed.'

By help of the plummet we have learnt that the bottom of the sea, like the land, has its mountains and valleys; but the plummet only answers comparatively in the shallows: the depths of the sea we cannot sound at all. Where the plummet can be used, and in still less depths, where the eye can reach, the bottom of the sea presents very different appearances, as it is composed of rocks, clays, shells, sands, &c. In many parts, near the coasts of America, it is covered with vegetables, which makes it look as green as a meadow, on which are seen thousands of turtles and other sea-animals feeding; in others, as along the coasts of Africa, in the Persian Gulph, &c. but especially in the Red Sea, it is, literally speaking, a forest of submarine plants and corals, formed by insects for their habitations, sometimes branching out to a great extent; and at last, with the accumulation of the wreck the sea deposits upon them, forming lands and islands for the habitations of men, and bold shores, or reefs of coralline rocks, which are dangerous to navigation, but which maintain the acquisitions made from the ocean, while it heaves against them a prodigious weight of waters, which, being dashed into foam by the abrupt opposition, is called by the mariners the surf of the sea. These are the interruptions that make navigation so dangerous on the coasts of the East Indies and among the South Sea islands; with these, however, the natives are familiar; among these they have the art of swimming and navigating their little vessels, where an European would be sure of being dashed to pieces.

160. *Africa.*] If we leave the tropical seas to take a view of the animals of the tropical countries, Africa seems to offer the greatest variety. In this quarter of the globe, where many nations seem to lead a wild and roving kind of life, but little acquainted with the benefits of arts and associations, the savages of the forest seem to dispute the possession of their native wilds with the lords of the earth. Among the rivals of man in those extensive deserts, we may reckon the lion, the tiger, with the other beasts of prey; the serpent and the crocodile, those fierce and cruel enemies; the elephant and the rhinoceros, formidable when attacked; and even the ape, which, in some parts, grows to the amazing length of six and seven feet, and proves his most formidable opposer: the small kinds of apes, by their natural agility, leave far behind the utmost exertions of posturers and dancers; the gigantic races of the ourang-outang are so strong, that ten men would not be a match for one of them; they go together in companies, and if they happen to meet one of the human species remote from succour, they shew him no mercy; they even attack the elephant, which they beat with their clubs, and

oblige him to leave that part of the forest which they claim as their own. Among so many fierce or formidable enemies, we may be ready to wonder how the Indian or negro can subsist, or prevent his country from being quite overrun by them; it is, perhaps, by their mutual contests, more than by any thing his feeble arts can oppose, that their numbers are thinned. At night-fall, when the raging heat of the day has subsided, and man prepares to go to his rest, the state of hostility begins; the whole forest then echoes to a variety of different howlings: the deep-toned roarings of the lion are heard like distant thunder; the shriller yellings of the tiger pierce the ear; the jackall, the hyena, and other animals of the dog kind, pursue their prey in packs, and make the forests ring, while they animate each other in the fatigues of the chase by their mutual cries. The serpents also, of various kinds, that begin their calls at the close of the evening, by their cries and hissing, make a much louder symphony than the birds in our groves in a morning. But the neighbourhood of a river, rivulet, or lake, is most especially the place where these hostile tribes draw up for the engagement. In those burning countries where the sun dries up the water for hundreds of miles round, when what had the appearance of a great river in the rainy season, becomes in summer one dreary bed of sand; in those countries a lake that is never dry, or a brook that is perennial, is considered by every animal as the most desirable acquisition. Being inwardly parched by the heat of the climate, they traverse whole deserts to find out a spring; which, when they have discovered, no dangers can deter them from attempting to enjoy. On the banks of this envied spot, thousands of animals, of various kinds, are seen venturing to quench their thirst, or preparing to seize their prey. The elephants are perceived in a long line, marching from the darker parts of the forest; the buffaloes are there depending upon numbers for security; the gazelles relying solely on their swiftness for safety; the lion and tiger waiting a proper opportunity to seize; but chiefly the larger serpents are there upon guard to defend the accesses of the lake. Not an hour passes without some dreadful combat: but the serpent, defended by its scales, and naturally capable of sustaining a multitude of wounds, is the most formidable; it is the most wakeful also, for the whole tribe sleep with their eyes open, and are consequently forever on the watch; so that, till their rapacity is satisfied, few other animals will venture to approach their station. Thus dreadfully hostile are the beasts, and thus savage the scenes that give animation to and diversify the African landscape.

161. *Europe.*] In Europe, civilization seems to have reduced the generality of the beasts of the field to the obedience of man, and to have banished those of the rapacious kinds: it is true, in its most northern regions, and in the wilder parts of it on the south, as about the mountains of the Alps, wolves and bears still hold the possession of their gloomy recesses, and sometimes make their depredations on the flocks or herds of the husbandman; and while even the fleet deer have been domesticated and inclosed in parks, some of the cow kind, unreclaimed by man, still run wild and bellowing in the forests.

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But it is in the wilds of Africa that all the tribes of the creation seem to enjoy their native freedom; there the horse, the ass, and the zebra, in unnumbered herds scour across the desert, and own no master's stall; there the cow, the sheep, and the goat bound over the hills; they wait not in those fruitful regions to be supplied with fodder at the hand of man, or to be penned up in folds. The flocks unite in their common defence, or seek safety in flight.

162. *Asia, Isles of the Pacific.*] The wilds of Asia on the south, seem to present a picture similarly savage; and the animals which compose it are found extended on the north into Tartary and China. The islands of the Pacific are unfurnished with these creatures.

163. *America.*] In America, however, we meet with some of these formidable animals; but it is remarkable they generally seem feeble and diminutive, if compared with those of Africa and Asia. The tapir bears some resemblance to the mule; it chiefly resides in the water, but comes ashore to graze on the banks, and may be considered as the river-horse of America; but what is its strength, and what are its dimensions when compared with the behemoth, or hippopotamos of the Nile, Niger, or Zaara, above seven feet high, and of a proportion every way fitted for strength; whose jaws open about two feet wide; whose fore-teeth are above a foot long; whose disposition, however, seems as inoffensive as its force is prodigious, and which seldom ventures from the river side, but when pressed by the necessities of hunger, or of bringing forth its young! There seems still a greater disproportion between the camel and the American lama. The lion of Bilidulgerid is said to be nearly five feet high; his outward form displays activity and strength, his mien is striking, his looks confident and bold, his gait proud, and his voice terrible. When he prepares for the combat he summons up all his terrors; he then lashes his sides with his long tail, which alone is strong enough to lay a man level; he moves his main in every direction; it seems to rise and stand like bristles round his head; the skin and muscles of his face are all in agitation; his huge eye-brows half cover his glaring eye-balls; he discovers his teeth, which seem rather formed for destruction than chewing his food; he shews his tongue covered with points, and extends his claws, which appear almost as long as a man's finger. The tiger of Bengal, of still more untameable ferocity, though not so tall as the lion, has sometimes been known to measure twelve feet in length, without including the tail, while the cougar, or tiger of America, seldom exceeds three. And the puma, which has received the name of the American lion, is a creature still inferior, being extremely cowardly, climbing trees for its prey, and subsisting rather by its cunning than its courage. The difference seems less considerable between the jaguar, or panther of America, and the leopard, or great panther in Asia, and between the lynxes that are chiefly found in the northern parts of Europe, Asia, and America; but there are some animals that appear peculiar to America: these seem almost wholly destitute of the power of defence, their figure ungainly, their limbs ill proportioned. Some among them, as the little ant-bear, and the sloth, appear so miserably

miserably formed, as scarcely to have the power of moving and eating; they seem only capable of maintaining their languid existence in the most desert solitudes; and hence, perhaps, they have been totally extirpated those countries that are more populous, or more largely furnished with the fiercest beasts of prey. Why the quadrupeds of America are generally found less than those of Asia or Africa, may very naturally excite our enquiry. Perhaps they are the progeny of some feeble kinds that were beat out of the southern parts of Asia, or that, wandering to the north through scarcity of prey, or from any other cause, in some generations became diminished through the coldness of the climate, and passing over to America on the north, in its cooler regions, have never regained their original magnitude; or that which distinguishes the same species of savages in the torrid wilds of Africa and Asia; or perhaps they are of a different species, and their kinds are extirpated in the more populous parts of the world. The serpents, however, and alligators, or crocodiles, in the warm rivers and swamps of the new world, seem pretty much the same with those of the old; and those animals that are fond of the most cold and northern situations, as bears, deer, and wolves, seem exactly the same all around the arctic pole.

We might close this little sketch of the lower orders of the creation, and our desultory course through the different quarters of the globe, by observing that the birds, which are animals of passage, and entirely unconfined to soils, maintain their utmost magnitude and ferocity in the regions of America, as we find, especially in the enormous condors, which spread an expanse of wing of twelve feet from tip to tip, whose beaks are so strong as to pierce the body of a cow; and two of these tremendous animals are able to devour it; they render the mountains terrible to birds, beasts, and men; they sometimes descend from their heights to spread desolation and terror in the lower grounds, and when their prey happens to fail them upon land, they come down to the sea-shore to feed upon dead fish and such other nutritious substances as the water throws up. That in America also birds of the smallest size are found, as the little humming bird, which, inserting its bill into the cup of a flower, and sucking out the juices, the powder, or the pulp, while it keeps fluttering over it, seems to approach in size and manner to the bee: that the birds of the torrid regions are remarkable for the splendor and beauty of their plumage; and that those of the temperate zone excel in song.

However, before we quit this entertaining part of geography, the view of the different tribes of the creation, which the life of man, and all the volumes he could write, would never fully unfold,—it may perhaps be interesting just to take a cursory survey of their habits or manners, as they are influenced by their subjection to or independence of man, and by their associations or animosities with each other.

164. *Care of their Young.*] All the pursuits of the whole brute creation seem naturally to be directed to the preservation of themselves, and the propagation of their species; and every deviation

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from these appears to be but sport, or a temporary relaxation from the business of their lives. It has become a proverbial saying, that self-preservation is the first law of nature: the care of their young, however, seems happily, with some tribes of animals, a business of more importance than even the preservation of themselves. To defend these, they seem to brave every danger. The rapacious kinds, whether beasts or birds, as the lions and the eagle, acquire new terrors, and become more than commonly formidable on this important occasion. They undauntedly attack those that annoy them, they prowl about for supplies for their savage and hungry brood, and bear away to the nest or den their mangled prey, yet throbbing with life: thus early accustoming them to habits of slaughter. Even the weaker and more harmless races of animals seem to assume new habits, and acquire a courage and a consequence never felt before. The timid creature that would at another time flee, in an agony of distress, on a distant appearance of danger, stays by its young till their enemy is close upon them, or it meets his approach and ventures to give him battle, or throws itself in his way, and draws him on to follow it; thus decoys him to a distance from its infant treasure, then springs off at once, and mocks his vain pursuit. This latter description of temporary courage and little arts of illusion, seems to hold with most of the feeble kinds of birds; and with the timid deer, and others of the fearful beasts of the field. The amphibia and fishes seem mostly a heedless tribe of creatures, leaving their spawn or eggs in the water, or on the banks, to be brought forth without their assistance, by the heat of the sun's tepid beams. Some, however, seem possessed of finer feelings: among fishes the whale, with some others, shews a tender concern for its young one, grasping it in its fins, and bearing it off from the attacks of their enemies; and while the crocodile, among the amphibia, lies under the imputation of thinning the number of its own young, in common with their numerous other devourers, the open-bellied crocodile is thought, like the opossum of the West Indies, to afford a shelter to its young ones when in danger, in that extraordinary cavity or bag which it has under its belly, with its opening outwards. It has been thought that it brings forth its young ones alive, like the higher races of animals, and that it nourishes them in its false belly when they are yet too feeble to provide for themselves. In these anxious solitudes for providing for their young, the male among quadrupeds seldom bears a part; he seems oftener to prove a formidable enemy: thus, among those of the rapacious kinds, the lions and tigers, with the greatest caution, conceal their retreats from the males, to prevent them from devouring their cubs. It is otherwise with the feathered tribes of the creation; among them we may often see a beautiful lesson of domestic fidelity. The male shares the labour of building the nest, he industriously supplies provision to the hen while she performs the duty of incubation, or he takes her post while she flies abroad in quest of food for herself: while she is on the nest, he also acts the part of a trusty centinel, and cheers her with a song, with a note that informs her that no danger is at hand. If an enemy approach,

approach, his voice is suddenly stopt; and this is the signal that puts his mate on her guard. When the era which fulfills their patient expectations, and completes their happiness, has at length arrived, and the callow brood bursts from the shell, the raptures of the male seem not less than those of the mother. They both seem at that season transported with pleasure; every action testifies their pride, their importance, and tender solicitude.

This description of connubial fidelity seems generally applicable to all the tribes of the fowls of the air, excepting such as the cuckoo, that destroys the eggs of others, and leaves its own in the place; and those of the poultry kind: with these the tedious duty of incubation and the care or protection of the young clutch, devolves entirely upon the hen, whose care at this season is to avoid the cock as an enemy. Even the drake, in its state of liberty or wildness, is sometimes known to supply the down from its breast for lining the nest, when that of the duck has failed, by its having been often disturbed while building.

The parental affection seems happily to hold no longer with the tribes of the brute creation than the wants of their tender offspring require their care and protection. When the young ones are fledged, and prepared for flight, the parent birds bring off their little charge, and shew them the place and manner of feeding; they reconduct them to the nest, and backwards and forwards they practise them in this way, till they appear able to provide for themselves; they then again lead them out, and leave them with the wide world before them; all connection seems to be at an end, and every one, singly, or uniting in flocks, prepares to shift for itself. These manners are observable among the little songsters that make vocal the hedges round the habitations of man. Those of the rapacious kinds, that build their nests on inaccessible cliffs, and in distant solitudes, as the eagle and the falcon, though they mix not in flocks like other birds, yet live in pairs from year to year, with strict fidelity, and mark out a rock for themselves, not allowing others to encroach on their territories: their ferocious habits soon seem to overcome the feelings of the parent; they drive off their young at an early period to shift for themselves, and when disappointed of their prey, they sometimes kill them, in a fit of fury. But of all the feathered tribes of the creation, those of the pie kind seem by far the most industrious, the most faithful, the most constant, and the most connubial: they live in harmony with each other, and cherish their young to the last. With respect to man, they seem rather noxious than beneficial; he often considers them as a chattering, noisy, troublesome sort of neighbours, that only approach him like robbers, to commit depredations on the fruits of his labours; but with respect to each other, no class of birds are so active, so ingenious, or so well fitted for society. In fact, they sometimes live in societies; and in these are general laws observed, and a kind of republican form of government established: they administer castigation to refractory individuals, and join together to repel the strangers that come to settle among them. If the emigrants however can fight their way

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way to get a nest built in their territories, and once enter on the duty of incubation, they are then considered as members of the state, and remain in undisturbed possession of their acquisitions. Of the pie kind are reckoned the magpye, the raven, the crow, the woodpecker, the parrot, &c. And of this kind is considered the swallow of Ternate, or the beautiful bird of Paradise, which some have described as an inhabitant of the air, living only upon the dew of heaven, and never treading below. As such, it appears in paintings or japanned wares, without either feet or wings, but with a long bushy tail; and as such it is presented to us in Europe, when stuffed or preserved, where we must not look for the remains or stumps of its limbs, for fear of ruffling or tearing off its beautiful plumage. Time, however, has discovered that this bird not only has legs, but very strong ones for its size: that the natives of the Molucca islands, of which it is an inhabitant, being very little studious of natural history, and perceiving the inclination the Europeans had for this beautiful bird, carefully cut off its legs as its greatest deformity, before they brought it to market, and then asserted it had none. The birds of Paradise, which in flocks enliven with their brilliant plumage the spicy forests they inhabit, being seen, like the swallow, almost ever on the wing, may appear some apology for European credulity. The phoenix of Arabia, almost every body has heard of, as a bird which lives for a thousand years, then makes itself a bed of spices, as a nest and funeral pile, commits itself to this, takes fire, and expires: another phoenix springing out of its ashes, to be, contrary to the order of the creation, a solitary inhabitant of the globe, and the only one of its kind for another thousand years. Though it may in these enlightened days seem superfluous to contradict this fabulous and unnatural history of the phoenix, it has been gravely treated of in former times; and this romantic creature of the imagination, has been considered as a bird really existing.

Birds vary in building their nests, according to the different temperature of the climate, the duties they have to perform, the materials they have to work upon, and the enemies they have to encounter with. Where the eggs are numerous, it is then incumbent to make their nest warm, that the animal heat may be equally diffused to them all. Thus the wren, and all the small birds, make their nest very warm: on the contrary, the plover, that has two eggs, the eagle, and the crow, are not so solicitous in this respect, as their bodies are capable of being applied to the small number upon which they sit. Some birds that with us make a very warm nest, are less solicitous in tropical climates, where the heat of the weather promotes the business of incubation. On the other hand, the water-fowls, that with us make but a very slovenly nest, are much more exact in this particular in the colder regions of the north,—they there take every precaution to make it warm; and some kinds strip the down from their breasts, to line it with greater security. They vary their nests according as they find a supply of materials. The red-breast, in some parts, makes its nest with leaves, where they are in great plenty; in other parts with moss and hair. The swallow with us builds

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its nest with mud and grafs. On the coast of China and Coromandel, from the foam of the sea-water dashing against the rocks, they gather a certain clammy, glutinous matter, perhaps the spawn of fishes; of this they build their nests: these the Chinese pluck from the rocks, and bring in great numbers to the East Indies to sell. They are esteemed there as great delicacies; and, when dissolved in chicken or mutton-broth, preferred far before oysters or mushrooms. But these varieties seem trifling, when compared with those that the fear of an enemy produces. The penguin, a bird of far more waddling gait than a duck, with its body so heavy and its wings so short, that it can scarcely fly at all, while it seems better adapted than any other fowl for living in the water, like most other water-fowls, in solitary parts, makes a small depression in the ground serve for its nest. It is otherwise where it has been disturbed. In some parts it burrows in the ground like a rabbit; in others, the awkward creature makes a shift to clamber to the ledge of a rock, where it may nestle and bring forth in security. The females lay their single egg in a common nest, and sit upon this, their general possession, by turns; while one is placed as a centinel to give warning of approaching danger. The woodpecker, that with us bores itself a hole for a nest in a soft or decayed tree, with its sharp strong beak, has with other birds, recourse to very different arts in the tropical climates. In the forests of Guinea and Brasil, the monkey and the snake are the bird's greatest enemies. The monkeys inhabit the tops of the trees; the larger snakes twine round their trunks, and carry on unceasing war with each other. To avoid these formidable and mischievous enemies, the wary little architect flies busily about in quest of a fine kind of moss; this it first glues, by some viscous substance gathered in the forest, to the extremest branch or leaf of a tree; then building downward, and still adding fresh materials to those already procured, a net is formed, that depends, like a pouch, from the point of the branch; the hole for entering at is on the side, and sometimes below, like a funnel or chimney. The interior parts, where their little treasure is deposited, are lined with the finer fibres of the same substance, which compose the whole. The nest hangs before the spoilers, a tempting object, which they can only gaze upon, while the gaily-plumed birds fly in and out, without danger or molestation from so formidable a vicinity.

165. *Animosities, Associations.*] As, according to the present constitution of this world, while some harmless creatures live on vegetable fare, others, of more savage nature, prey upon these; so wherever we turn our eyes upon living creatures, whether beasts, birds, fishes, or insects, we generally see in their habits or manners the rueful picture of violence and evasion; from the lion in the forest to the cat on the hearth, and from the eagle on its airy cliff to the spider in the wall, tearing the helpless to pieces. The smaller kinds, however, and those that are most exposed to be preyed upon, seem by far the most fertile; and thus their kinds are preserved from generation to generation, notwithstanding the slaughter they are continually exposed to.

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The associations among the brute creation, except those for preserving their species, seem to be few : those of the most rapacious kinds, as the eagle and the hawk, and the lion and the tiger, with all the other quadrupeds of the cat kind, seem averse from society, and, like robbers, enjoy the fruits of their violence in solitude. Graminivorous animals, both beasts and birds, seem more socially disposed ; they are generally seen feeding together in herds and in flocks ; dogs also seem naturally to unite in packs in hunting their prey. Animals of the whale kind combine to drive other fishes into one another's jaws, or into situations where they can easily devour them. In the pigeon-house and the rookery, we see a sort of society ; and, even among insects, in the republic of ants and the monarchy of bees, a kind of established polity. But of all the associations that exist among the tribes of the brute creation, that of the beaver seems the most ingenious, the most orderly, and the most nearly approaching to the manners of the most refined nations of mankind. The beaver is somewhat shaped like a rat, about two feet long, and nearly one foot high : its fore-feet supply the place of hands, as in the squirrel ; it has membranes between the toes on his hind-feet, and a broad, flat, and scaly tail for the purpose of swimming. The beavers begin to assemble about the middle of summer, to form a society that is to continue for the greatest part of the year ; they generally form a company of above two hundred members. The place of their meeting is commonly by some water-side ; if it be a lake, in which the waters are always upon a level, they despend with building a dam ; but if it be a running stream, which is both subject to floods and falls, they then set about building a dam or pier that crosses the river and forms a dead water : this dam or pier is often four-score, or an hundred feet long, ten or twelve feet broad at the base, and two at the top : the declivity is on that side opposed to the water ; the other side of the dam is perpendicular like a wall. The part of the river over which this dam is usually built, is where it is most shallow, and where some great tree is found growing by the side of the stream. With no other instruments but their teeth they soon lay this level, and in such a way, that it always falls across the stream, and serves as the principal beam of their fabric. With their teeth also they cut down stakes of different lengths, and drive them into the ground, at a small distance from each other, intermingling with them those that are smaller and more pliant, and stopping all the cavities both within and without with clay, so that the water is duly confined. They continue to raise the dyke in proportion to the elevation of the water, and the plenty which they have of it. They are conscious, likewise, that the conveyance of their materials by land would not so easily be accomplished as by water ; and therefore they take the advantage of its increase, and swim with their mortar on their tails, and their stakes between their teeth, to the places where there is most occasion for them. If their works are, either by the force of the water or the feet of the hunters, who run over them, in the least damaged, the breach is instantly made up, every nook and corner of the habitation is reviewed, and, with

with the utmost diligence and application perfectly repaired; but when they find the huntsmen visit them too often, they work only in the night-time, or else abandon their works entirely, and seek out for some safer situation.

When the dyke or mole is completed, the solidity of which is still more astonishing than even the size, their next care is to erect their several apartments, which are either round or oval, and divided into three stories, one raised above the other; the first below the level of the causey, which is for the most part full of water; the other two above it. This little fabric is built in a very firm and substantial manner, on the edge of their reservoir; and always in such divisions or apartments as above mentioned, that in case of the water's increase, they may move up a story higher, and be no ways incommoded. When they have built their lodges, they mix up some clay and dry grass together; they work it into a kind of mortar, and with this, by the help of their tails, they plaster all their works, both within and without. Eight or ten beavers live in one house. If the number of the inhabitants increase to fifteen, twenty, or thirty, the edifice is enlarged in proportion. It seems, even four hundred beavers have been discovered to reside in one large mansion-house, divided into a vast number of apartments, that had a free communication one with another. The beavers, during the summer, are perfect epicures; and regale themselves every day on the choicest fruits and plants the country affords: in winter they eat the wood of the birch, the plane, and some few other trees. They have magazines, or wood-yards, wherein they lay up their winter's provision. In procuring of this, each takes a different way, and has his proper walk assigned him, in order that one labourer shall not interrupt another in the prosecution of his work. The smaller branches are brought home by the individuals singly that gnawed them down; those of larger dimensions are conveyed to the store-house by a whole body of the beavers. These logs are not thrown up in one confused irregular heap, they are piled up, one across another, with intervals between them, in order to take out, with the greater facility, but just such a quantity as they shall want for their immediate consumption, and those parcels only which lie at the bottom of the water, and have been duly steeped. This timber is cut again in small pieces, and conveyed to one of their largest lodges, where the whole family meet to consume their respective dividends, which are made impartially in even and equal portions. Sometimes they traverse the woods, and regale their young with a more novel and elegant entertainment. Such is the picture of brutal society the manners of these little animals present in the remote parts of America, and where, undisturbed by man, they have an opportunity of associating together. On the other hand, where he makes his appearance, and the dread of his presence breaks up the society, the timid little creatures each individually strives to shift for itself. Their talents are entirely repressed by solitude. The beaver, when alone, has but little industry, few tricks, and it is without cunning sufficient

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166. *Influenced by the Human Race.*] We may now close this sketch of the earth, by considering the different orders of living creatures as they are particularly influenced by the domination of man, or as they call forth his arts to subdue them to his service, or to suppress their hostilities : and in this interesting view the scene is highly diversified. It has been imagined there is something peculiarly august in the upright figure of man ; something that naturally strikes the most savage beasts of the forest with awe, and teaches them submission to the lord of the earth. It is found, however, he owes more of his superiority to his intellectual powers than to any advantages he derives merely from his outward form ; and accordingly, those animals who have not yet become acquainted with his prowess, and which have only been accustomed to engage with creatures of inferior strength, meet his first attacks with the most hardy presumption. The albatross and the whale only flee from his presence when they have learned by fatal experience the superiority of his arms. The bear, in the most solitary regions of the north, and the ferocious animals of the unpeopled deserts of the torrid zone, at first meet man without fear : thus the lion of Zaara, accustomed only to conquer, ventures singly to attack a caravan, consisting of thousands ; and when repulsed by numbers, and obliged to retreat, he still continues to face his pursuers. It is otherwise in the most populous part of Africa, where he has been often coursed down by the hardy inhabitants ; there his dread of the human kind is so great, that the sight of a child puts him to flight. It has been remarked, that in all countries, as man is civilized and improved, the lower ranks of animals are repressed and degraded ; either reduced to servitude, or treated as rebels, all their societies are dissolved, and all their united talents rendered ineffectual ; their feeble arts quickly disappear, and nothing remains but their solitary instincts, or those foreign habitudes which they receive from human education. Those whose savage or timid natures admit not of domestication, seek, in the most distant recesses of the forest, or the most impregnable fastnesses of the mountains, protection from an enemy, whose superior sagacity discovers their little arts, and finds out their retreats, who entraps them with his snares when not present himself, and who undiscovered slays them at a distance. Those who have been brought to domestication or servitude, have lost, with their native spirit, much of their original habits and forms. We may perhaps dispute however, whether domestication has invariably degraded the lower ranks of animals. Some, under the care and protection of man, seem to have increased in size, in strength, and in swiftness ; and those that he has treated with familiarity and affection, as the dog and the horse, seem to have acquired a courage and generosity they never knew in the forest. Thus, horses and dogs, animated by the presence and shouts of the hunters, are brought to attack and pursue the most formidable animals : even the tremendous lion, the glare of whose eyes would have petrified them with horror, or made them to flee in an agony of distress when in a state of wild-

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ness, they will most freely encounter when encouraged by the company of man.

It seems, indeed, that man maintains much of his dominion over the different tribes of the brute creation, and effects many of his greatest works and designs by the help of these two faithful domestics. In the tending of flocks and tilling the ground, they alleviate his labours: and in countries where he combats with the hostile kinds of animals, or draws much of his subsistence from the capture of the timid creatures that run wild in the forest, in his horse and his dog he finds willing partners in his toils: these, however, are far from being the only sharers in his labours and pursuits; and our conceptions of what he has effected, in subjecting the tribes of the brute creation to his service, will be very confined and inadequate, if we take our idea merely from what we have an opportunity of observing in our own particular age and country. In fact, there does not appear to be any kind of animals but what he has brought to feel his superiority: they have been made not only to supply his necessities, but also to furnish him luxuries and superfluities; and, what is most extraordinary, he has made almost every kind, except fishes and insects, yield to his orders, and while living, perform him duties, or contribute to his amusements. Apes have in Africa been made useful domestics, and set to pounding at a mortar and carrying water. The elephant and the rhinoceros have not found protection in their ample size and prodigious strength: they have been taken and tamed: crocodiles have been drawn from their watery beds and bred tame up in ponds, for the diversion of the kings of Africa and Siam; lions have been made to draw the triumphal chariots of conquerors; and tigers to protect those flocks which, in a state of wildness, it was their support to devour. The Asiatic hunters have brought even the panther, the ounce, with others of the spotted savages of the tropical climates, to assist them in the chase, as the ferret is used in catching rabbits: the otter, when taken young, is taught to fish for its keeper, and amply rewards him for his trouble in rearing it. It is not the cat alone that has been domesticated and employed in ridding houses of vermin; serpents have been kept for similar purposes, and several little animals of the weazel kind: of these the boldest and most useful is the ichneumon of Egypt. The ichneumon, with the strength of a cat, has more instinct and agility, a more universal appetite for carnage, and a greater variety of powers for procuring it. Rats, mice, birds, serpents, lizards, and insects, are all equally pursued; it attacks every living thing which it is able to overcome, and indiscriminately preys on flesh of all kinds. Its courage is equal to the vehemence of its appetite; it fears neither the force of the dog nor the insidious malice of the cat; neither the claws of the vulture nor the poison of the viper: it makes war upon all kinds of serpents with the greatest avidity, seizes and kills them, how venomous soever they may be; and we are told that when it begins to feel the effects of their rage, it has recourse to a certain root which the Indians call after its name, and assert to be an antidote for the bite of the asp or the viper. This animal is found in great numbers in all the southern

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parts of Asia, from Egypt to Java; and is also found in Africa, particularly at the Cape of Good Hope. It is very serviceable to the Egyptians, in discovering and destroying the eggs of the crocodile; it also kills the young ones that have not as yet been able to reach the water; and, as truth goes often hand in hand with fable, it has been reported, that it even enters the mouth of the crocodile, when it finds it sleeping on the shore, boldly attacks the enemy in the inside, and at length, when it has effectually destroyed it, eats its way out again.

Birds, from their power of flying up on high, we might suppose quite beyond the reach and dominion of man. Besides the fowls however, which he has tamed as provisions for his table, and those that in the cage amuse him with their notes, he has reduced to his obedience even the eagle, the falcon, and the owl, and taught them to assist him both in fowling and the chase. In like manner also, among the water-fowl, he has taught the pelican and the cormorant to supply him with fish as well as themselves.

To tell the arts whereby man has reduced the many and varied tribes to his service; to describe the various manners of capture he makes use of, whether he takes them by stratagem, hardiness, or force, would require whole volumes; and unnumbered are the treatises that have been written on these subjects. We have already seen how he calls in one kind of animals to help him in pursuit of another. There is another method he practises with equal and even greater success: this is by setting tamed animals to allure wild ones of the same species into the snares he has laid for them. In this manner ducks are taken by thousands in decoys; and in this manner the elephant, wisest of brutes, is brought from the forests, and made a willing servant, attached to its keeper, intelligent in understanding, and faithful in obeying him.

[167. *Prowess of Man.*] Thus we see that all the lower classes of animals, whatever may be their powers, when opposed to each other, are brought to feel the superiority of man. This lord of the creation maintains his dignity amongst all living creatures, alike in the cold frozen regions of the north, and in the hot and burning deserts of the torrid zone. The savage and hostile tribes of creation may for a while hold his empire in dispute, but their opposition and their force seem but to serve to awaken his ingenuity, and to call his powers into action rather than to repress them. Those that fall under his protection, from the earliest period of their lives, as the tame ox and ass, are, through long domestication, brought to know their owner and their master's crib. Upon those that he brings roaring or bellowing from the forest, and upon those that he brings down screaming from their airy flights, he at first imposes the severity of famine, watching, and fatigue, to suppress their savage habits, and reduce them to obedience; he holds at his own distribution the rewards of his services; he supplies them with their food, and secures their attachment; or he scours with alacrity the wilds they inhabit, deals death among them, and converts their spoils to his uses. The roaring of the ocean stays not his pursuits; he draws the creatures from the deep; and, with a hardiness still more desperate, he climbs the craggy cliffs;

cliffs: or, lowered from the airy tops of tremendous precipices that overhang the waters, he seeks the nest of the unnumbered water-fowl, that, fluttering, chattering, croaking, or screaming, fill the air with their cries. From dangers of this kind, he, in many parts of the world, draws the principal means of his support; and as labour produces health to those who have to endure it, so those whose situations expose them to particular hardships, acquire peculiar habits of courage and agility, become fitted for and partial to their own particular situation, and enjoy it without repining at the seemingly happier and easier lot of others.

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PART IV.

REVOLUTIONS
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IN THE PRINCIPAL EMPIRES
OF
THE WORLD.

SECTION XVII.

Of Ancient and Modern History.

THE melancholy retrospect that history affords of the calamities of past ages, has been much augmented through the depraved taste of men, who have, in all ages, since the practice of war was introduced upon earth, unhappily lavished the bewitching reward of praise on the destroyers of men; and the eager desire for false glory, which has stimulated poor mortals to their mutual destruction, and necessarily swelled the historic page with rueful feats of arms, seems to have almost precluded from the records of antiquity any account of the sweet fruits of peace. Nations have seldom desired to be accounted an inglorious people, living in quietness and ease; while their exploits in battle have been extravagantly delineated. The pious philosopher, spending his time and himself for the good of mankind, the husbandman, mechanic, and physician, with all their useful labours, cut but a poor figure in the annals of time; while the hero, the man of war, rises glaringly to view, mounted on trophies, the wreck of nations: hence history, to a feeling mind, will appear little more than a catalogue of human woes. In one page we often see thousands devoted to the sword, and the victor's triumph raised at an expence of blood, which a remote nation mourns with floods of tears;

tears; while the sweet intervals of peace, which all nations have probably enjoyed a greater share of than a mere superficial view of history would encourage us to believe, have often been passed over in silence, and buried in oblivion.

168. *The largest Divisions of Time.*] According to the history of the Hebrews, the period before the flood was 1656 years; the interval from that time to the Christian epocha, was 2348 years; from the creation then till the Christian era, according to this chronology, the space of time was 4004 years; to which, if we add the years that have since elapsed, we have the period which includes all the ages of mankind.

169. *A very short History of the World.*] It has been conjectured that Fohi, the founder of the Chinese nation, was Noah, who retired eastward with his family, from his vain and presumptuous offspring attempting to build a city on the plain of Shinar, and a tower whose top might reach unto heaven, and to establish to themselves a name. We read that their design was frustrated, their language confounded, and they themselves scattered over all the face of the earth; and this has been considered as the beginning of the different nations, tongues, and people upon earth.

Languages and people appear to have continually fluctuated since mankind first became divided into nations. Sometimes neighbouring nations have, from their vicinity, naturally commixed in speech and manners; often they seem to have rudely jumbled together in the distraction of war. Sometimes a people has been rent in pieces by intestine divisions; at others they have been obliged to bow to a foreign yoke: generally the conquerors have imposed their language and their manners, together with their government; yet sometimes the rude ravages of a refined and ingenious people have thought it worth their while to copy the manners and improvements of the vanquished.

Nearly 2000 years before the Christian era, Abraham was born. The Arabians are thought to be the descendants of his son Ishmael, as the Jews are the offspring of his son Isaac.

Nearly 1500 years before the Christian era, the Hebrews escaped from the bondage of the Egyptians; about which time Cadmus introduced the use of letters, and Danaus that of shipping, into Greece. Troy was built a little before this period. Sparta, Thebes, and Athens were founded; and the Olympic games were instituted a little after it.

Solomon reigned on the throne of Israel 1000 years before the Christian era; at which time the states of Athens and Thebes had set aside monarchy, and became republics: and the other states generally followed their example. It was more than 100 years before this that Troy was burnt; and 100 years after it, that Carthage was built.

When Rehoboam, the son of Solomon, came to the throne, ten tribes of Israel revolted, Benjamin only remaining with Judah; and 721 years before the Christian era, they were subdued, and scattered abroad

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abroad by the Assyrians, under Shalmaneser; 32 years before which the city of Rome was founded.

The Jews were in captivity, in Babylon, 600 years before the Christian era, under Nebuchadnezzar; 500 years before it, they were again in possession of Jerusalem, under Cyrus; 300 years before it, they were under Alexander; 100 years before it, they were, under the Maccabees, independent of foreign powers; at the commencement of the Christian era they were under the Romans; and in the year 72 the siege and destruction of Jerusalem took place.

In the 1st century, the Roman empire was at its greatest extent; in the 5th, the western part of it was overrun by the Goths, Vandals, Saxons, Huns, &c. England falling to the share of the Saxons; and in the 7th, the eastern part of it was much reduced by the conquests of the Mahometans.

In the 13th century, the Christians and Mahometans were destroying one another for the possession of Palestine; and at the same time the Tartars were making the most dreadful havock of the human race. In the 14th century the Christian powers were driven out of Asia.

In the 15th century the Turks took Constantinople, and thus demolished the last remains of the Roman or Greek Empire; since which time the Christians, bent upon mischief, have committed it on a larger scale, and with greater impunity. It is enough to say in proof of this, that they have found the way to India, by the Cape of Good Hope, and discovered America in the latter part of the 15th century.

SECTION XVIII.

Ancient History, containing an Account of the principal Revolutions of Empire in Antiquity.

Having passed, with rapid strides, through the different ages of mankind, and glanced in the most hasty way, at some principal events which have marked different periods, we may now enter a little more into the detail of history; still however endeavouring to pass hastily along, only noticing the leading events, more particularly the great revolutions which have agitated the earth, or the rise and fall of the principal empires in the world.

In the most remote antiquity, we may principally have reference to the history of the Hebrews: indeed, that is almost the only clue we have to lead us through those obscure ages.

The influence of the Romans was so great, when at the height of their power, over the other nations of the earth, that the history of that people, for a certain time, is as the history of the world.

world. During this period, we may principally have regard to the Roman history.

In later times, we may chiefly notice the disputes between the Christian and Mahometan world, the ravages of the Tartars, and some more recent occurrences in Europe and the western world.

170. *Dispute of the Scythians and Egyptians.*] In the days of the patriarch Abraham, it appears there were several empires founded on the earth, as those of Babylon, Nineveh, Egypt, Assyria, and Persia. It is likely that the Scythians also were at this time a people inhabiting vast tracks in the northern regions of Asia, and under their own government, though their manner was to wander about as choice or necessity directed, carrying with them their families and tents; for while the Jews traced their descent through every generation from Adam, the Scythians disputed with the Egyptians the honour of antiquity. The Egyptians argued that their country was peculiarly favourable to animal life; that the moisture of the soil, together with the warmth of the climate, naturally produced living creatures; and as a proof of this, they referred to the mud of the Nile, which does no doubt, at certain warm seasons, teem with life, from the vast quantities of spawn and eggs deposited there by fishes, crocodiles, and very probably birds too, as the ostrich, &c. they concluded then, that man must have first grown in Egypt; and that he could never have sustained the cold of Siberia till the art of making houses and clothes was first found out.

On the other hand, the Scythians said that men were naturally fitted for the countries wherein they were born; that therefore clothes were not more necessary for them than the Egyptians; that if fire at first had possession of the earth, as some supposed, their country would be habitable before that of Egypt, the heat being naturally expelled from the northern regions first; but if water originally covered the earth, their country, being high land, would first be dry; while that of the Egyptians, lying low, still abounding with fens and marshes, and which was with great labour, by fences and banks, kept from being overflowed, would be the last of all places peopled. So the Scythians had the romantic honour of being accounted the original or first people. This hardy race, history tells us, wisely preferred the solitudes and pleasures of domestic life in their native wilds, before the din and cruelty of war, with all the delusive visionary honours it can confer on its most successful champions. It seems, notwithstanding this, that those instruments which they expertly used in the chase, they could dexterously handle, when attacked, in defence of themselves, their wives, and families; and the Egyptians, we are told, in a very remote period of antiquity, having invaded their borders, were repulsed, pursued, and at length subdued in their own native fens; the Scythians, on their return, during fifteen years, making a general conquest of Asia.

171. *Revolutions in Antiquity, and their Effect on the Hebrews.*] In the early ages of mankind, when the earth was covered with forests which teemed with wild beasts, hunting was a principal employment of the people; and the hardy and the bold, in the destruction of

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of these creatures, were justly considered as the deliverers of their country. In the Gentile world, they were deified; and with the Hebrews their acts were recorded. Sampson and David had encounters of this sort, and were successful: and Nimrod, the son of Cush, the son of Ham, whose father was Noah, was accounted a mighty hunter before the Lord. This hero acquired such influence over the people in his day, that he founded at Babylon the first monarchy; which is particularly mentioned in history. This was 2447 years before the Christian era. Not long after this, the four governments of Thebes, Theri, Memphis, and Tanis, were established in Egypt. About the same time the foundation of Nineveh was laid by Assur, whose successor, Ninus, added Babylon to his dominions; and, assisted by his wife and enterprising successor, Semiramis, laid the foundation of that monarchy; which, under the name of the Assyrian empire, ruled over the other parts of Asia for many ages. This appears to have been an interval of peace to the Assyrians; for, from the reign of Ninias, the son and successor of Semiramis, and cotemporary of Abraham, there is almost a blank in their history for no less than eight hundred years. In the latter part of this interval, the Canaanites were driven out from their country by the children of Israel; and near the close of it the city of Troy was demolished by the confederated Greeks.

At a very early period the practice of war took place upon earth. In Abraham's days kings were numerous, and the people were involved, as they have continued to be till this day, in the quarrels of these men.

Bera, king of Sodom; Birsna, king of Gomorrah; Shinab, king of Admah; Shemeber, king of Zeboim; and the king of Belaor Zoar, were joined together in the vale of Siddim. Twelve years they served Chedorlaomer, the king of Elam, or Persia: and in the thirteenth year they rebelled. And in the fourteenth year came Chedorlaomer, and the kings that were with him, Amraphel, king of Shinar; Arioch, king of Ellasar; and Tidal king of nations, and smote the Rephaims, and the Zuzims, and the Horites, and all the country of the Amalekites, and also the Amorites. And there went out the kings which had revolted, and they joined battle with them in the vale of Siddim; and the kings of Sodom and Gomorrah fled, and fell there; and they that remained fled to the mountain. And when Abraham heard that Lot, his brother's son, was taken captive, he armed his trained servants, born in his own house, three hundred and eighteen, and pursued them unto Dan. And he brought back all the goods, and also brought again his brother Lot, and his goods, and the women also, and the people. And the king of Sodom went out to meet him after the return from the slaughter of Chedorlaomer, and of the kings that were with him. And Melchizedek, king of Salem, brought forth bread and wine.

The kingdom of Egypt was founded so early as 2188 years before the Christian era, by Mizraim the son of Ham; and when Abraham went down there to sojourn, because of the famine which was in the land, the princes of Pharaoh were solicitous to minister to the pleasures

tures of their monarch; and the different governments, into which the country had been divided, were united under him. About two centuries after this, when Jacob came into Egypt, the country was divided into several districts, or separate departments; councils were established for the management of public affairs; granaries for preserving corn were erected; and the people carried on a considerable trade. The children of Israel found favour with the Egyptians till the death of Joseph, when they were grievously oppressed, and held in slavery for two centuries and a half. Sesostris, a prince of great abilities, is supposed to have mounted the throne of Egypt on the death of Amenophis, who was lost in the pursuit of the Hebrews, about the year 1492 before the Christian era. In his time, and in that of his immediate successors, the government is said to have been well conducted; and the number of inhabitants is supposed to have amounted to 27,000,000. Egypt suffered various revolutions from the coming in of the Canaanites, whom Joshua expelled from their country, and from their contests with their neighbours, the Ethiopians.

In the days of Solomon, Sesostris, king of Egypt, is said to have extended his arms, with success, westward to Spain, and eastward to Persia: but the vanity of triumph, or a thirst for plunder, rather than a desire for empire, seems to have been his motive. This probably, like that of the Scythians, in their excursion to Egypt, was but a flying conquest, marked with no further vestiges of the vagrant conquerors than the ruinous havock made by their destructive ravages. From this period, however, the design of nations generally seems to have become more extensive than any thing their predecessors had ever imagined. The design of each, for several ages, appeared to be nothing short of universal dominion; and accordingly we find the government of the east successively in the hands of the Assyrians, of the Medes and Babylonians, of the Persians, of the Macedonians, and of the Romans.

In most of these revolutions the Hebrews were involved. When the leaders, Moses and, after him, Joshua were dead, the people of Israel had judges for several centuries. At length the judges, the sons of Samuel, took bribes, and perverted judgment. Then the elders desired Samuel to make them a king to judge them like all the nations; and when the prophet remonstrated with them, the people said nay, but we will have a king over us, that may judge us, and go out before us and fight our battles. This was nearly about the time of the death of Codrus, when the Athenians abolished the regal power, and proclaimed that none but Jupiter should be king at Athens. Saul was appointed to reign over them. After Saul, David was appointed king over Israel: this is he who, when but a stripling, slew Goliath, the giant champion of the Philistines: it was he who took Jerusalem from the Jebusites, which continued afterwards to be the capital of Judea. Solomon succeeded his father David in the government of this people: he built, at Jerusalem, the celebrated temple, which had no less than 163,300 men employed in the work, and yet it was seven years in building. According to some, the height

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of the principal tower from the ground was above one thousand feet; and, by Josephus's account, the stones of which the buttresses of the building were composed, were about eighty feet long, twenty-four thick, and sixteen high, of such exquisite workmanship, that, when put together, they appeared like one continued polished rock of marble. And we read that the house, when it was building, was built of stone made ready before it was brought thither; so that there was neither hammer nor axe, nor any tool of iron to be heard in the house while it was building.

172. *Separation of Ten Tribes.*] Upon the death of Solomon, all Israel were come to Shechem to make his son Rehoboam king; but he rejecting the advice of the old men that stood before Solomon, his father, while yet he lived, answered the people roughly, and spake, after the counsel of the young men, in threatening words. So when all Israel saw that the king hearkened not unto them, the people answered the king, saying, What portion have we in David? neither have we inheritance in the son of Jesse: to your tents, O Israel; now see to thine own house David. So Israel departed unto their tents. It seems the general idea that Judah and Benjamin only adhered to Rehoboam; that the other ten tribes, falling into idolatry, were, in less than 300 years, carried into captivity by the Assyrians, scattered abroad, and never afterwards gathered. It appears, however, that a remnant of the people remained stedfast to the house of David and the sons of Aaron, with others of the tribe of Levi, continued to offer sacrifice in the temple of Jerusalem, when Israel was generally overrun with gross idolatry.

173. *Captivity of Judah, Return, &c.*] In less than 400 years after the division of Israel, the Jews also, having departed from the law and the testimonies to the idolatry of the nations, were swallowed up in the general conquest which Nebuchadnezzar made in the nation; their temple was burnt, the wall of Jerusalem broken down, and they themselves carried captive to Babylon; there they sat down by the river, they wept, they hung their harps upon the willows, they remembered Zion.

In the days of Cyrus, king of Persia, and conqueror of Babylon and the other eastern nations, about 536 years before the Christian era, the Jews returned from the captivity, repaired the wall of Jerusalem, and rebuilt the temple. When the foundation of this house was laid, many shouted for joy; but others of the priests and Levites, and the chief of the fathers, who were ancient men that had seen the first house, wept with a loud voice.

The government, in subordination successively to Persia, Alexander, and his successors, devolved upon the priesthood, which soon became corrupt. We are told, that a statue was erected on the altar in the temple, and sacrifices offered to Jupiter Olympus. When the Jews had now many of them, through great persecution, departed from the law, and embraced idolatry, Mattathias being called upon to abjure the religion of his fathers, it is said to have been his declaration, that though all his nation and people should depart from the law, yet would not he; and seeing one of his countrymen about to sacrifice

sacrifice on the altar of an idol, he slew him, as was ordered in the law by Moses, and soon found himself at the head of an army of his countrymen, spirited by his example. His sons were the Maccabees, under whose government the Jews became independent, and continued so till they became tributary to the Romans, under whom also they sometimes had their own kings.

174. *Coming of Jesus.*] It was when the Romans, having proved everywhere victorious, had extended their conquests over the known world; when a general peace had succeeded the rude ravages of war; when Judea was reduced to a Roman province (yet the people left in the uninterrupted practice of their worship in the temple) in the days of the Herods, kings of Judea, when Augustus and, after him, Tiberius, were emperors at Rome, that Jesus appeared.

Before his time the bodies of beasts had smoked upon the altars of both Jew and Gentile; and the Supreme Being had been represented by the former as the Lord of Hosts: by the latter, under various symbolical and distorted forms, and with contradictory epithets. The meek and lowly Jesus represented the Supreme Being to the people, under the affecting and engaging title of their Heavenly Father, and inculcated the evangelical principles of peace, unlimited forgiveness of injuries, and universal benevolence. But the Jews despised the low appearance of the son of man, laid violent hands on him, and crucified him.

The Jews did not all, however, reject his doctrines: of his nation there were many who, in declaring them to Jew and Gentile, sealed the truth of their testimony with their blood.

175. *Roman War, and Siege of Jerusalem.*] In the year 67 began the war with the Romans, which only terminated in the destruction of Jerusalem, and the subversion of the Jewish nation. At first their successes were various, and in their mutual contests thousands were slain on both sides; dreadful dissensions, in the mean time, breaking forth among the Jews, the Christians fled to Pella beyond Jordan, and were secure; and many others, judging what would be the consequence of the Roman displeasure, retired from the city.

In the year 68 Vespasian entered Galilee at the head of a powerful army; one city after another fell victims to the Roman vengeance; and the people, in prodigious numbers, were either put to the sword, or carried into captivity. Among the latter was Josephus, the Jewish historian, who afterwards, being in favour with the Romans, accompanied Titus, Vespasian's son, at the siege of Jerusalem, and recorded their wars.

The nation was now divided into two very opposite parties; one was for submitting to the Romans, and obtaining peace; the other was composed of zealots, who affirmed it would be offering the greatest dishonour to God, to submit to an earthly potentate, and especially to heathens. Under the name of religion, the zealots committed the most horrid cruelties: they began their outrages by murdering all those that opposed them in the country round about; they entered Jerusalem, but met with a stout opposition from the opposite party, who had taken up arms to defend themselves from the violence

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of these fierce persecutors. The zealots got the upperhand, and 12,000 persons of rank in the city, in the flower of their age, fell victims to their wanton cruelty. Barely to put these to death was thought too mild a punishment; they made it their diversion to inflict the most exquisite tortures they could invent on the helpless victims of their implacable fury. They next began to wreak their vengeance on the multitude, who were obliged to flee Jerusalem, and seek refuge with the Romans, though the zealots had placed guards at the avenues, who were sure to destroy the miserable fugitives that fell into their hands. Vespasian waited at Cesarea, knowing that the Jews were wasting their strength, and rendering themselves an easier prey to the Roman arms.

When the zealots, under John, the son of Levi, who had heretofore fled from the siege of Gischala, had destroyed or driven out all the opposite party, these violent people turned their rage against each other. The Idumeans, who were of John's party, had complained of the number put to death; but John, by his tyranny, forced them to revolt, and turn their arms against him.

One Simon also, who had his head-quarters at Massada, had formed a party, and, in his turn, had massacred, plundered, burnt, and destroyed almost all before him. Through fear of the greater fury of John and his zealots, whose strong hold was the temple, and who, it was feared, would set fire to the rest of the city, the gates of Jerusalem were opened to Simon and his followers. Another faction was also raised in the city under Eleazar; but this was of no long continuance, for the different parties were all resolved into the two factions of Simon and John.

In 72, the Romans began their march towards the capital of Judea, wasting the country, and destroying the inhabitants as they went along; and in 73, sat down before the walls of Jerusalem. The General, Titus, afterwards emperor, repeatedly by Nicanor, by Josephus, and in his own person, made offers of peace to this infatuated people; but they were rejected with contempt; and Titus was, with reluctance, obliged to begin the siege in form. With incredible labour of the Romans, trees were cut down, houses levelled, rocks cleft asunder, and vallies filled up, towers were raised, walls built, and battering rams erected, with other engines of destruction, against the city.

Within, the factions of John and Simon were mutually destroying each other. The parties were unanimous in the desperate sallies they made upon the Romans; and, when returned within the gates, with equal rage they turned their arms against each other, in those parts of the city which John had heretofore laid waste in his fury; while such of them as fell into the hands of the Romans were crucified in view of the town.

The Romans, after several severe conflicts, and extreme fatigue, make a breach in the walls, and force a passage. The Jews, abandoning this inclosure, retire to the next: with still greater pains the second is forced, the Jews retreat, and are still inclosed.

In the mean time famine and pestilence reign within the city; the

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rage of the factious increase with their calamities; they force the houses of the inhabitants in quest of victuals: if they find provisions, they kill the people for not apprizing them of it; if none, they inflict on them the most excruciating tortures, under the idea, or pretence, of their having some concealed. The zealots were not reduced to real want, but they had the horrid satisfaction of starving what they called useless persons, and thereby keeping up their own stock.

The General, knowing their miserable condition, and wishing to spare them, gives them four days to cool; and, in the mean time, distributes provisions to his army in view of the besieged, who flock on the walls to behold it. He makes fresh offers of peace, to which bitter invectives and renewed hostilities are returned. From the offers of Titus, which they attribute to cowardice rather than compassion, and from the cruelties of the zealots, great numbers are induced (though desperate the attempt) to steal away privately to the Romans; while many are only rendered more desperate and resolute; and even in the Roman camp they met with their destruction. From a notion the soldiers had taken, that they had swallowed great quantities of gold, 2000 of them were ripped open in one night, to come at the supposed treasure. Titus, apprized of this bloody business, would have condemned the murderers; but they proved so numerous, he was obliged to forego the design, and content himself with issuing a proclamation through the camp, that whoever should henceforward be suspected of such horrid villany, should be put to death; yet this did not prove a sufficient protection; many of them afterwards were secretly murdered through the said greedy design.

The calamities of the Jews continue to increase.—Without, the Romans throwing up a wall in about three days, near five miles in circuit, thereby cut off from the besieged the possibility of escape by flight, as well as help and provisions from abroad: such was their ardour to hasten the destruction of this destined nation.—Within, heaps of dead bodies rotting above ground, and dying mortals, desolate the streets of Jerusalem; the inhuman zealots making the miseries and dying groans of their starving brethren the subject of their cruel mirth, and even wantonly killing them, by sheathing their swords in their emaciated bodies, under pretence of trying their sharpness.

I should undertake, says Josephus, an impossible task were I to enter into a detail of all the cruelties of those impious wretches; it will be sufficient to say, that I do not think that since the creation any city ever suffered such dreadful calamities, or abounded with men so fertile in all kinds of wickedness.

When the zealots saw they could no longer, either by their severities, or the greatest vigilance of their guards, prevent the defection of the people, or their flight to the Romans, they had recourse to another most impious stratagem:—A set of wretches, pretenders to prophecy, was hired to go about the city, crying out that a speedy and miraculous deliverance was at hand: and this, for a while, afforded delusive hopes to the miserable remains of this infatuated people,

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people, when an affair happened in Jerusalem which filled the inhabitants with consternation and despair, and their besiegers with horror and indignation. An unhappy woman, reduced to the last extremity by pinching hunger, sacrifices the feelings of a mother to the voracious-calls of appetite, butchers her child, and feeds upon the body.

When news of this unnatural affair was spread through the city, the miserable inhabitants then began to think themselves forsaken by Divine Providence, and to expect the most dreadful effects of his judgments; and when Titus heard, with horror, the dismal account, he, in his anger, resolved on the extirpation of the nation. Since, said he, they have so often refused my proffers of pardon, and have preferred war to peace, rebellion to obedience, and famine (such a dreadful one especially) to plenty,—I am determined to bury that cursed metropolis under its ruins, that the sun may never shoot his beams on a city where the mothers feed on the flesh of their children, and the fathers, no less guilty than they, chuse to drive them to such extremities, rather than lay down their arms.

Titus, notwithstanding this declaration, still inclined to compassionate this deluded people; and while one part was yielding after another to the strenuous attacks of the Roman army, both Josephus and he continued to exhort and persuade them to surrender. He desired greatly to preserve the temple; saw with concern the daily sacrifice cease, and upbraided the zealots for neglecting their worship; but this wretched people were plundering that very temple which they superstitiously regarded as their sure defence against the Roman nation, and which they persuaded themselves was too holy to be ever suffered to fall into the hands of the heathen, though they themselves were getting drunk with the wine intended for the sacrifice.

The havock of war now rages in Jerusalem; one place after another is set fire to by the besiegers and the besieged, and, in the dreadful combustion, numbers are destroyed on both sides. The temple was yet entire; but the fury of the assailants could now no longer be restrained. One of the Roman soldiers, getting on the shoulders of his comrade, threw a blazing firebrand in at the window of the temple, which soon set the building in a flame, on the same day and month in which it had formerly been burnt by Nebuchadnezzar.

Titus, who had been sleeping in his pavilion, awakened by the noise, immediately ran to give orders to have it extinguished, but in vain; he called, begged, threatened, and even caned his men; but they, in the general confusion, were too earnestly bent on killing the Jews, or increasing the flames, to either hear or regard the orders of their General. By the flames, by falls from the battlements, and by the Roman sword, which destroyed all it met with, whether man or woman, the hoary head, or the tender child, prodigious numbers perished, and, among these, upwards of 6000 persons, that had been seduced there by false prophets, who had promised them a miraculous deliverance on that very day. Some of them remained five whole days on the battlements, and then threw themselves on the
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General's mercy ; but were answered, that they had outstayed their time, and were led to execution.

The scene of these desolations was the temple and its precincts, from whence the zealots, by a strenuous push, made their way into the city ; but the avenues were guarded, and they could not get out. They then fortify themselves as well as they can on the south side of the city, from whence John and Simon desire a parley with the General : they are answered, that though they had been the cause of so much bloodshed and ruin, their lives shall be spared if they lay down their arms. They reply, that they have engaged themselves by the most solemn oaths never to surrender ; and beg leave to retire to the mountains, with their wives and children. Enraged at this reply, Titus caused an herald to bid them stand on their defence, declaring, that not one of them should be spared, since they persisted to refuse his last offers of pardon.

The Daughter of Zion, or the lower city, is now abandoned to the fury of the soldiers, who plunder, burn, and massacre with insatiable rage. The zealots who are left, flee to the royal palace in the upper city, called also the City of David, on Mount Zion. Here they killed 8000 Jews, who had taken refuge in it.

Near twenty days are spent by the Romans in making preparations for a vigorous attack on the upper city ; the engines of war then play with fury ; the besieged, who are seized with a panic, run like madmen, with design to attack the wall of circumvallation, in order to effect an escape from the city ; but being repulsed, they fly to the public sinks, common sewers, and every secret recess they could find : those whom the Romans can find are massacred, and the city is set on fire. John, being pinched with hunger, comes out, and begs his life : this is spared, but he is condemned to perpetual imprisonment. Simon's retreat being better stored, he holds longer out. Simon and John are saved, with 700 of the handsomest Jewish captives, to attend the triumphal chariot : after which Simon is dragged through the streets, with a rope about his neck, severely scourged, and then put to death : and John is sent to his punishment. Three castles still remained untaken, Herodian, Machæron, and Massada ; the two former capitulated, but Massada held out. The place was very strong both by nature and art, defended by a number of zealots under Eleazar. The Roman General having, in vain, tried his engines and battering-rams against it, surrounded it with a high wall, and set fire to the gates. Eleazar, in despair, persuaded the garrison first to kill their wives and children, and then to choose ten men by lot, who should kill all the rest ; and, lastly, one of the surviving ten men to dispatch them and himself, first setting fire to the place before he put an end to his own life. This was accordingly done ; and when, on the morrow, the Romans were preparing to scale the walls, surprized neither to see nor hear any thing stirring, they raised an hideous outcry ; on which two women, who had concealed themselves in an aqueduct, came out and acquainted them with the desperate catastrophe of the besieged.

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The whole number of Jews who perished in this war was computed to be upwards of 1,406,000, besides vast numbers who perished in caves, woods, wildernesses, common-sewers, &c. of whom no account could be taken. Of the number of prisoners, amounting to 97,000 (besides 11,000 who were starved through neglect, or died probably of extreme grief) a few were reserved to grace the victor's triumph, and great numbers sent to the different cities of Syria, to be exposed on the public theatres as gladiators, or be devoured by wild beasts, according to the barbarous usages of the times.

Since this dreadful catastrophe of their city and government, the Jews have been dispersed over the face of the earth: and, notwithstanding the continued persecutions of the uncircumcised through all the ages of Christianity, they continue to increase and multiply. They have eminently distinguished themselves by their commercial industry, many important branches of merchandise being derived from them. In antiquity there was "a difference put between the Egyptians and Israel;" and till this day it is to be lamented, that the mutual superstitions of the Jews and Gentile world keep them separate from each other.

176. *Greeks, Romans, Goths, Saracens, &c.* Greece was for many ages the theatre of revolutions; but their effects seem to have been principally confined to that celebrated little track of the earth. It was principally peopled by colonies from Thrace, from Egypt, and from Asia: and these, under their different leaders, gave rise to many small monarchical states, which at first had no connection with each other, except by mutual inroads, piracies, and hostilities. When the different states of Greece had at length begun to assume some appearance of form and regularity, 1496 years before the Christian era, Amphictyon proposed to the kings, or leaders, a mutual association, as a preventive of intestine division, and a protection against foreign powers. By his eloquence and address he engaged twelve cities to unite together for their mutual preservation. Two deputies from each of these cities assembled twice a year, at Thermopylæ, and formed what was called the Amphictyonic council. In this assembly, whatever related to the interest of the general confederacy was discussed, and finally determined. It had the care of the temple at Delphi, and of the riches amassed in it, from the dedications of those who consulted the oracle; and was the great spring of action in Greece, while that country preserved its independence. The games also instituted in Greece, as the Isthmian at Corinth, the Olympic, the Pythian, and the Nemean, though the diversions of a barbarous age, and attended with some very bad effects, seem to have helped, in those rude times, to associate the Greeks together.

The first expedition undertaken for the general interest of the states of Greece, was that of the Argonauts. Their object was to open the commerce of the Euxine Sea, and to establish colonies on the coasts of Colchis, where they at length arrived with their little fleet, after encountering many difficulties. This happened 1262 years

years before the Christian era; and in less than 80 years after this time, they appear to have made a wonderful progress in wealth and power. At that time the ships of the confederates against Troy formed a fleet of no less than 1200 vessels, which contained at a medium, no less than 100 men each.

The different states of Greece were generally divided into districts. Their king or chief was their leader in time of war, and their judge in time of peace. He presided in the administration of their religious ceremonies, but was far from being absolute. In each state there was a number of other leaders, whose influence over their particular clans or tribes, was not less than that of the king over his immediate followers. These captains were often at war with one another, and sometimes with their sovereign. Each particular state was, on a smaller scale, what the whole country had been before the time of Amphictyon, till 1234 years before the Christian era, Theseus, king of Attica, detached the different tribes from the leaders who commanded them, abolished the courts which had been established in different parts of Attica, and appointed one council-hall common to all the Athenians. Monarchy was in a similar way, consolidated in the other states; but Greece did not long continue under the power of kings. The Athenians declared that none but Jupiter should be their king 1095 years before the Christian era; much about the same time the Thebans abolished the regal power; and other cities of Greece, after the example of Athens and Thebes, erected themselves into republics. The Spartans or Lacedemonians, retained the name of king in their constitution 800 years longer; but the regal power was very much limited; moreover, it was divided between two families, the descendants of the two brothers, Euristhenes and Procles, who having got possession of the country, had become conjunct in the government. After that, the Spartans had two kings at once. They were a most hardy race: and their manners, even in peaceful times, were so severe, that war with all its hardships, seemed but like a relaxation to them. Athens and Sparta took the lead in the affairs of Greece; they were rival states, and in their contests and revolutions involved the others in almost continual war, when they were not combined together against their foreign enemies.

If the Greeks, this active and restless people, produced any considerable effect in the political affairs of the world at large, it was, perhaps, by standing as a barrier between the infant state of Rome and the monarchs of the east. Whilst they were opposing and beating off the numerous armies which the kings of Persia brought against them, Rome, contending only with neighbouring nations, was emerging from obscurity, and gradually rising into power.

This celebrated city was founded 753 years before the Christian era, at the time that the Assyrians were overrunning the east; and during all the time of those mighty revolutions wherewith Asia was agitated, while the government of the east was successively in the hands of the Assyrians, the Medes and Babylonians, of the Persians, and of the Macedonians,—the Romans, a hardy race, in the constant

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exercise of war, were enlarging their territories; till fifty years before the Christian era, the contests of many celebrated nations were silenced and lost in their conquests, and their dominion was acknowledged over the greater part of the known world.

Romulus and his banditti, the founders of Rome, have been accounted the descendants of the Trojans, who, under Æneas, after the burning of their city, found an asylum among the Latins. The leader of the Trojans married Lavinia, the daughter of Latinus, king of Latium, and built Lavinium. His son Ascanus built Alba Longa; and from the kings of Alba Romulus was descended.

At the time of the founding of Rome, Italy was divided into a number of small but independent districts; and Romulus was continually embroiled with the neighbouring states. He was generally victorious, and added the nations he subdued to the empire, copying their arts, whether civil or military, if he thought them superior to the Romans. He also instituted the senate, a court originally composed of an hundred persons, distinguished for their wisdom and experience.

After the death of Romulus, the first king of the Romans, Numa, Pompilius, Tullus Hostilius, Ancus Martius, Tarquinius Priscus, and Servus Tullius, laboured each during his reign, for the aggrandizement of Rome. But Tarquinius Superbus, the seventh and last king, having obtained the crown by the murder of his father-in-law Servius, supported it with the most cruel tyranny and insolence, till the whole family of the Tarquins were expelled the city, and the regal power was abolished 509 years before the Christian era; at which time the territories of the Romans extended about fifteen miles round the walls of their city.

After this the government was in the hands of consuls. These were two magistrates annually chosen, who generally wishing to signalize themselves during their temporary power, led on the Roman people from victory to victory. The nations of Italy, Spain, and Lusitania, the Carthaginians, Grecians, and people of the east, successively submitted to their yoke.

The Romans, however, in their enterprizes, were not uniformly victorious: in their insatiable thirst for dominion, they were sometimes reduced to the greatest difficulties. About 400 years before the Christian era, their city was taken and sacked by the Gauls, under Brennus: and 200 years after this disaster, Hannibal, the Carthaginian General, having routed all the armies that were sent against him, appeared before their gates; and, it is thought, would have wholly crushed the rising empire, had he not been called home to the defence of Carthage.

The latter days of the Roman republic exhibited a picture not unfamiliar to the early days of the republic of France. The citizens were a prey to domestic factions; the most virtuous were not secure; yet whatever party was uppermost at home, and whatever atrocities were committed there, they withstood or defeated the unnumbered armies of surrounding nations. But the end of the civil broils at Rome was the destruction of the republic. About 50 years before

the Christian era, Julius Cæsar sacrificed the liberty of his country to his own ambition. The enthusiasts, Brutus and Cassius, to restore liberty to their country, assassinated him in the senate; but the result of this sanguinary deed was their own expulsion from the city, and the renewal of civil horrors. The sea-fight at Actium, and the infatuation of Mark Anthony for the meretricious Cleopatra, rendered Octavianus the master of the world. From this time the authority of the Romans, under the emperors, was acknowledged from the British isles to the borders of Persia, and from the wilds of Scythia to the Lybian sands, till, in the beginning of the fifth century, the seat of government being removed to Constantinople, and the western part of the empire overwhelmed by inundations of the wild uncultivated people of the north, as the Goths, Vandals, and others, their possessions were limited to that part of the world we now call Turkey. Here the Persians, under their own princes, the Arsacides, more than once defeated the Roman legions, when the kingdoms which had arisen out of the spoils of Alexander, divided among his Generals, were entirely under the Roman yoke.

After the removal of the seat of government to Constantinople, Rome was not lost to the empire without some struggles. Alaric, king of the Goths, took and plundered that city in 410: Genferic, the Vandal, did the same in 455; as did Ricimer (descended from the royal family of the Suevi, though in the service of the Roman emperor) in 472. Lastly, Odoacer, king of the Heruli (chosen a leader of the barbarian soldiers, who revolted on account of their pay) put an end to the Roman empire in the west, in the reign of the Emperor Augustulus, and caused himself to be proclaimed king of Italy in 476; but in 493 he was defeated, and put to death, by Theodoric, king of the Ostrogoths.

In 537, Belisarius, the General of Justinian, recovered Rome and the greatest part of Italy from the Goths; but in 547, the Goths, under Totila, again took Rome; and though they were soon after driven out by Belisarius, they retook it upon his return to Constantinople. At length, in 553, Narses, the Roman General, conquered and slew Teia, the last king of the Goths, in Italy, after which it was governed by officers called exarchs, who resided at Ravenna.

In 726, Rome, in the pontificate of Gregory II. revolted from the Greek Emperors, and with its duchy, including part of Tuscany and part of Campania, became a free state, and was governed by a senate. In 800, the senate and people of Rome acknowledged Charlemagne as emperor of the west; and he surrendered the city and duchy of Rome to the Pope, reserving the sovereignty to himself as Emperor of the Romans. Under the Popes, as temporal princes, Rome and its territory remain to this day.

It was in the earlier part of the seventh century, when the deluge of barbarians from the wilds of the north, which had swept away multitudes of the ancient inhabitants of the west, was now much reduced by a rapid succession of revolutions among themselves, characteristic of their fickle and ferocious temper, when the eastern empire and Persia, by their contentions with each other for supe-

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priority, were both enfeebled, that the Arabians began to distinguish themselves under the name of Saracens. About the year 622, Mahomet became the head of a sect, which, in about eleven or twelve years, made themselves masters of all Arabia; and soon after this extended their conquests over a great part of the world. Spain and Portugal were brought under their government: and the extensive tracks of Africa and Asia, from the Atlantic to India, were subdued by them, and received the doctrines of Mahomet.

SECTION XIX.

Modern History, including the Disputes of the Christians and Mahometans, the Ravages of the Tartars, and the present Divisions of the Earth.

If we take a view of the world as it appears in the year 800, or the days of Charlemagne, the period when modern history is generally accounted to begin, we shall find that those parts of it which had hitherto fallen under the notice of the historians we are acquainted with, were generally shared among three principal empires.

177. *Mahometans, Christians, Crusades, &c.*] The dominions of the Saracens comprehended Asia and Africa, from the Ganges to the Atlantic: Spain was also a part of their empire. The western parts of the Roman empire were subject to Charlemagne. Greece, Asia Minor, and the provinces adjoining Italy, were the possessions of the now-reduced eastern Roman empire.

It seems hardly necessary to observe, that in the dominions of the Saracens, the doctrines of Mahomet were professed; in the eastern and western empires, those of Christianity.

Mahomet had not taken care to name a successor, and hence arose wars and janglings for the Caliphate. In Europe the contests seem to have been equally bloody. The British isles, divided into many states, whether under the Saxon heptarchy, or the ancient princes, were peculiarly obnoxious to intestine divisions. On the death of Charlemagne, the empire being divided among his children, fell under the same grievous evils, while the heptarchy being dissolved in 827, England was reduced under one head in king Egbert. In this infant state of the European powers, the contests of neighbouring states were calamitous and many; the depredations made on them by the Danes and Normans were wide and destructive, and the bickerings between the powerful barons and their sovereigns frequent and bloody.

Perhaps a period more calamitous than this now mentioned, is not to be met with in history. Mahomet had broken down the altars of idols, abolished their sacrifices, and taught the people to believe in the unity of the Supreme Being; but he had set himself up as a greater prophet

prophet than the meek and lowly Jesus, preached persecution and conquest to his deluded followers, and was in himself a dreadful example of violence. The most peaceful Christian religion, which breathes good-will to men, and teaches us to love our enemies, through the degeneracy of its professors, who had lamentably fallen into gross superstition, served as it was now professed, to warrant and foment the horrid practice of war.

When continual divisions, both in Europe and the Mahometan world, seemed to threaten the destruction of the whole human race, a new contest arose, which resolved the different contending powers into two grand parties. Palestine was regarded with partiality by the Christian world: they called this territory the Holy Land; and their contests for the possession of it they deemed holy wars.

The Caliph Omar, successor of Mahomet, had formerly invaded this country, and taken it from the eastern empire; and the Christian powers combined to retake it from the Saracens.

On this occasion multitudes of adventurers from the several kingdoms of Europe flocked together, to partake in the expedition, or crusade. With impetuous fury they attacked the Saracens, and were opposed with similar spirit. Deluges of blood were spilled in their conflicts; and few that had left Europe ever returned to their native countries. The enthusiasm of those ages was not easily subdued; and one crusade after another was undertaken with zeal. Jerusalem, which had been rebuilt by the Emperor Adrian, was accordingly in the hands of the different parties successively, till the Christians were finally driven out.

But while the Saracens and Europeans were consuming their strength in the small province of Palestine, the more eastern nations of Asia seemed threatened with total extirpation.

178. *Tartars, Turks, &c.*] The Tartars, of whom we have yet heard very little, about the time that John was king of England, began, under Jenghis Khan, afterwards under Hulaku and Timur Beck, or Tamerlane, successively, to make the most ruinous havoc of the human race. Jenghis Khan, perhaps the greatest and most bloody conqueror that ever lived, had been a prince of one of the small states of East Tartary, and deprived of his inheritance at the age of thirteen, which he recovered at the age of forty; when he reduced the rebels, and began his cruelties, by throwing their seventy chiefs into as many cauldrons of boiling water. Nothing now stands before him; he conquers the neighbouring princes; subdues and kills the Van Khan, or great Khan himself, to whom his own and other states had been subordinate. He extends his conquests over the nations of Asia, from remote Tartary, and the confines of China, to Russia on the west, and southwards to the Persian shores. His design at first seems to be to totally exterminate the people he subdues, and repopulate their countries with his Mongls, or Mogul Tartars: and accordingly with fell and fixed resolve, after a victory, he employs his army in beheading 100,000 prisoners at once. Jenghis Khan and his followers were Deists. It was a long time before the Khan had heard of such a thing as a temple, or any parti-

cular place dedicated to the Deity; and when it was first mentioned to him, he is said to have treated the notion with ridicule and contempt. Well would it have been, if the conqueror, in these speculative refinements had given up to the worship that is performed in the temple of the heart; but from the dreadful resolution of the sovereign in favour of his Deist, and the contempt he shewed for the manners of the vanquished, there seems reason to believe that his massacres, as well as those of Mahomet, were, in fact, persecutions on account of a different religious profession. His destruction of the human race is not to be paralleled in the annals of any other nation. To give an account of the numbers slain during his six years reign, will appear almost nugatory, when it is considered how incapable we generally are of forming adequate conceptions of things we have never seen. The human imagination easily lays hold of the description of three, four, or half a dozen men. Groups of this size frequently present themselves to the eye; we are familiar with them. Some, accustomed to larger assemblages of people, as at places of worship, on the parade, &c. being informed of the number present, may possibly, without vacancy or distraction of idea, read accounts of hundreds, or of thousands of people; but fourteen millions four hundred and seventy thousand, the number supposed to have been killed by the destructive Jenghis Khan, seems too prodigious for any human mind to realize.

The Tartars, after the death of this destroyer of the human race, continued extending their conquests, until, under Hulaku, they put an end to the empire of the Saracens, by taking their city Bagdad, and became masters of almost the whole of Asia.

The family of Jenghis Khan had become extinct, and the empire divided into many small states: between these, wars prevailed, when one of the princes, Timur Beck, or Tamerlane, in the fourteenth century, copying the example of Jenghis, reduced them under his own dominion: like him spread his conquests over Asia, and even took and pillaged the city of Moscow in Russia.

The commotions of the Tartars in the east had driven from their confines the inhabitants of Turkestan; and while the rest of the world were fiercely destroying each other, these vagrant Turks seem to have been acquiring possessions and power. Renowned for their courage and impetuosity in war, they were at first employed only as mercenary troops in the armies of contending powers: but this did not long suffice them; they soon commenced conquerors for themselves, and reduced their former masters, the Saracens and Persians, under their own dominion. On the other side of the Hellespont they were formed into a nation with Persia, in Bithinia: their capital, under their leader Othman, one of the greatest warriors and politicians of the age; and hence they were also called Othmans and Ottomans.

This people, Tamerlane, or Timur Beck, in his western excursions, found besieging the remains of the eastern Roman empire, now pent up in the city of Constantinople.

If the profession of Christianity could not secure the Europeans from wars and janglings among themselves, the doctrines of Mahomet were far from preventing his followers from destroying each other, among whom were now the Persians, Turks, and Tartars, as well as the Arabs and Saracens.

Timur accordingly attacked the Ottomans with his usual ardour, cut their army in pieces, and in the insolence of conquest, carried away captive their Sultan Bajazet, bound in an iron cage. The empire of the Tartars, however, soon after the death of the conqueror, became again divided into a number of states; while the Turks, recruiting their strength, renewed the attack on the Greeks, or Eastern Roman Empire; in the year 1452 subdued them, took the city of Constantinople, and there fixed the seat of their government; and in the beginning of the fifteenth century, their dominions included Greece, Asia Minor, Palestine, Syria, &c. with Africa from the Red Sea, along the Mediterranean, to the Atlantic Ocean. Thus fell, about the middle of the fifteenth century, the last feeble remains of the once great and imperial Rome: and the empire which had heretofore made the nations of the earth to tremble, bowed at the feet of the vagabond and overbearing Turks.

179. *Later Revolutions, and present Divisions of the Earth.*] After this period, the revolutions of empires appear to have been of far less magnitude than those that had heretofore happened: some of the sultans, it is true, while the European powers were weakening each other with continual broils, frequently brought their arms against them, and also led their Turks into Persia with success; but the policy of the Porte or Turkish court, in the government of the remote parts of their territories, as in Egypt, and a small part of Arabia, is to avoid heavy taxes, for fear of a revolt, and to keep the Scheiks, or petty princes of those distant parts, at variance with each other, to prevent them from uniting together against the Seignior: on so loose a basis does their extensive empire rest. Within the present century, the Persians, under their leader Kouli Khan, conquered their armies, and drove them out of their possessions in Persia; while the European powers were also gaining advantages over them. The other empires in Europe have also undergone some revolutions. The British isles, from a number of jarring states, are reduced to two, and these acknowledge the same ruler or head. The Netherland provinces have revolted from Spain, and become important states. The northern powers have grown into civilization and political consequence: and the kingdom of Poland has been rent in pieces, and divided among the three adjoining powers of Prussia, Germany, and Russia; with a variety of other changes, which are too local to affect the world at large.

The French revolution, though at first view it appears to be only no more than a change in their internal government, not affecting the world at large, has produced such astonishing effects, that it may be considered as one of the most extraordinary events that have been recorded in the annals of mankind. It was not merely a revolution in their government; their manners and religious pro-

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possessions have also been much changed; and their example seems to have had an influence on all the surrounding nations. The world at large seems to take an interest in the affairs of the republic of France. The rulers have combined together, and led unnumbered hosts against them: but already have those enthusiasts driven them from their threatened and invaded country, and enlarged its borders. Tracks of Spain, Italy, and Germany, have fallen into the hands of the republicans. By their help or example, the governments of Holland and Geneva have been overturned or changed; and it is out of the reach of human wisdom to ascertain the end of these things.

The northern parts of Asia are under the Russians, from Europe to the Pacific Ocean; and from the shore of the Euxine and Caspian seas, to the impenetrable region of the arctic pole. The Turks possess Asia Minor, adjoining which are the Arabs on the south. The Chinese possess the eastern parts of Asia; to the south-west and south of these lie the kingdoms of Thibet, Pegu, Siam, and Cochin China; and still farther east, the islands of Japan: all but little known to Europeans. In the central parts of the continent rove the Tartars; south of which lies Persia, and also India, or the Mogul empire; in which the maritime powers of Europe have possessions, as well as in the East India isles.

The Turks feebly support a sort of claim to the northern parts of Africa, from Abyssinia on the east, to Morocco on the west. These two empires we are not much acquainted with, and still less with the interior parts of the country. In Africa, also, the Europeans have settlements, both in the islands and along the western, southern, and eastern coasts.

But in America it is that the dominions of the Europeans are most extensive; for here they lay claim to territories, which it would take all Europe to people. Numerous tribes of Indians and the American States occupy the rest. It was in 1776 that the Americans declared that they then were, and ought to be, independent states: at that time the number was thirteen; since then two others have been added, and Congress has resolved, that the extensive track between the Ohio and the Lakes, shall form ten more.

Europe is the smallest quarter of the globe; but from the skill of the people in arts and sciences, it is of greater importance, in a political capacity, than all the rest of the world collectively. The empires in the eastern parts of it, derive a consequence from their numerous armies and military skill; but the maritime powers, or those on the west, have been by far the most enterprising in their projects. These are the nations whose language is heard in every quarter of the globe, and whose fleets have urged their adventurous way through opposing difficulties, exploring the utmost boundaries of sea and land, through every habitable climate of the world.

PART V.

CHANGES THROUGH DIFFERENT AGES IN THE MANNERS OF MANKIND.

SECTION XX.

Ancient Times, including the Origin of the Arts, Sciences, Commerce, &c. the Ancient Heathens, the Primitive Christians, and the Germans in their Forests.

IN the preceding abstract of history, we have already seen the revolutions of many great and powerful empires; and in this tumultuous world, where possessions seem to have been much influenced, and often quite determined by the longest sword, this necessarily proves an interesting part of history. There have happened, however, a variety of other events, which are perhaps of greater importance than the most splendid conquests, though they may appear with less show in the historic page. Such are the changes that have happened through different ages in the manners of mankind.

180. *Origin of Arts and Letters.*] The curious works which so diminutive and imperfect a being as man is able to perform, and the various acquisitions he is capable of making in science, are astonishing: he comes into the world a feeble and helpless creature, equally devoid of strength and reflection, and his limbs are not unfolded or enlarged by slower degrees than are the powers of his mind. But however ingenious and active the individual may prove when arrived at maturity, unavailing will be his efforts, when uncombined with the labours of his fellows. The acquisitions he has already made, he has learned from those that have gone before; and, however little he may esteem them, the discovery of many of them will be found on enquiry, to have been the labour of ages: and there is hardly any accommodation he experiences during his life, whether of food,
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raiment, or any other convenience, wherein multiform labours of his cotemporaries are not crowded together for his use: so mutually dependent are we on each other. It is by mutual combination alone then, that man is enabled to produce any considerable effect.

It appears from the Hebrew scriptures, that the arts were in a degree of cultivation before the flood. Of the offspring of Cain, Jubal was the father of such as played on the harp and organ; and Tubal the instructor of every artificer in brass and iron. According to Josephus, the posterity of Seth also observed the order of the heavens, and the courses of the stars. The same author says, that the Assyrians and Chaldeans were the first after the flood who applied themselves to the cultivation of the sciences. Their king, Belus, is said to have converted the celebrated tower of Babel into an observatory, and to have made the first astronomical observations on it; and the Chaldeans accounted him the author of that absurd and now exploded system of astrology. The Jewish historian also informs us, that their sciences, which the Egyptians cultivated with renown and success, were derived from the patriarch, Abraham, who brought them into Egypt, from Ur of the Chaldees.

To be able to give utterance to the silent emotions of the mind, and hereby to communicate our thoughts to each other by means of vocal sound, seems one of the most extraordinary capacities we are endowed with; and to be able to convey the intelligence thus brought forth from the secret recesses of the mind to distant ages and remote situations, by different combinations of visible characters, seems to be a power, if it is possible, still more astonishing. Indeed, so wonderful has this latter art appeared to Indian nations, who were not yet acquainted with it, that it has at first been found difficult to convince them that there was not in the book or paper which contained the writing, something supernatural, some secret voice which spoke to the reader.

While speech appears the most natural method of communicating our thoughts to each other, it seems not improbable but that so active and ingenious a being as man, would, if the powers for the formation of speech had been withheld from him, have found even in gesture a silent language, which to the eye would have been very expressive. Writing appears from history to have been the contrivance of human art; and was not discovered till many ages after the flood.

A desire to preserve from oblivion the remembrance of remarkable events or valuable acquisitions, seems in all ages to have universally prevailed among the nations of the earth. Among the earliest attempts after record, we may perhaps reckon the practice of the patriarchs in erecting of pillars, or heaping up stones together, by way of memorials; but with no better help than these, tradition necessarily wearies under the accumulating burden of ever-growing annals, and nations and people, with their names and deeds, become buried in one promiscuous ruin together. Picturesque representations

representations of acts and emblematical imagery, seem a further and very natural effort towards lasting memorials: and accordingly we shall find, whether we advert to the ingenious efforts of the aspiring Egyptians (those cultivators of science in remote antiquity) or the more feeble endeavours of the yet uninformed Indians, that drawing is also an early attempt after record; these are advances indeed, that might possibly have been made towards written history or recorded intelligence, if mankind had never been acquainted with the use of speech: but to affix to particular characters determinate sounds, and to be thereby able to communicate intelligible ideas to distant countries and remote ages, seems to be a power scarcely less convenient or useful than it is wonderful. By help of speech we enjoy the gratification of colloquial intercourse with a small circle of our cotemporaries; by help of writing, we hold conversation with people afar off, and with the hereby rendered social dead.

It is rather a matter of dispute with historians, by whom the written characters were at first contrived; some attributing the invention of letters to the Syrians, others to the Egyptians. However that be, it seems Cadmus brought the art from Egypt to Greece, that kindly soil for the yet infant sciences, where, with the other arts, it was improved and cultivated with equal diligence and success, as those writings of their poets and philosophers we have yet preserved abundantly prove; and which most of the present languages in Europe are in a great measure indebted to, for what degree of elegance or refinement they possess.

About a century before the birth of the prophet Moses, the use of letters is said to have obtained; and he who was skilled in the learning of the Egyptians, was capable of recording laws for the government of the children of Israel.

The Asiatics generally writing from right to left, the Europeans from left to right, one might naturally suppose, and some have imagined, that two different alphabets have, in different countries, been invented, independent of each other, from which the others have as branches, proceeded; but, on the other hand, it has been a conjecture, that as the subtle Egyptians had in the use of their hieroglyphics allegorized away the true simple worship to superstitious notions and idolatrous rites, so in the transition from their vague emblems to determinate characters, they had accounted their letters not simply signs of oral sounds, but also emblematical representatives of their fictitious beings, their fancied deities; and that Moses, in his many testimonies against the superstitions of the house of Pharaoh, had to shew to the backsliding children of Israel, that intelligence could be communicated by letters of form and arrangement, quite different from those which the Egyptians extolled as supernatural, or revered as divine: and that hence sprung the oriental alphabets in general, while the Europeans were obliged to Cadmus for his translating, to Greece, the characters of the Egyptians.

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The Chinese set down their characters in columns, from the top of the page downwards; but these are so complex and numerous that it takes a man's lifetime to learn them. Perhaps the arrangement was accidentally determined on, for by Grecian antiquities of the oldest date, it appears the inscriptions sometimes read from the right, as well as from the left.

181. *Idolatry.*] Among the various conjectures that have been made respecting the origin of idolatry, some have imagined it natural to the mind of man; and others have derived it from the false traditions that have prevailed in different nations, respecting the true worship. A very short time after the deluge, idolatry made its appearance. It seems, from the scriptures, that Abraham himself was brought up in it; and this was the worship of his forefathers. When Jacob departed from the house of his father-in-law, his wife Rachel took the images, and hid them in the camels furniture; and Laban complained, Wherefore hast thou stolen my gods? And when Jacob was commanded to go and dwell at Betnel, and make an altar there, the patriarch had first to cleanse his household from idolatry; and they gave unto Jacob all the strange gods which were in their hands, and all their ear-rings which were in their ears; and Jacob hid them under an oak, which was by Shechem. There is scarcely a nation we have heard of, but what has sometime been under the influence of idolatry; and it has assumed, in different ages and nations, a variety of shapes.

The beginning of idolatry in this world, was perhaps in the reverence of the people towards natural things. The shining orb, which affords day to the world; the moon and stars which beautify and cheer the silent watches of the night, these seem to have been, with many nations, the sole objects of their idolatrous worship; and there are perhaps no records of people fallen into idolatry, where those splendid luminaries have not had a share of their adoration. If I beheld the sun, says Job, when it shined, or the moon walking in brightness, and my heart hath been secretly enticed, or my mouth kissed my hand, this also were an iniquity.—And caution was given to the Jews, lest, when they looked up to the sun, moon, and stars, and the rest of the host of Heaven, they should be driven to worship them. The bowing to images also appears to have been a still grosser depravation of the human mind; yet this also appears to have obtained in the world at a very early period. Perhaps this practice would have never been once thought of, had not deluded man so far departed from the reverence he owed to his Maker, as to ascribe divine honour to his fellow mortals. When this was once conceived, they had a model, and the copy soon followed.

In remote antiquity, it seems, Belus the inventor of astrology, before mentioned, had a statue erected to his honour by the Chaldeans; and he who was adored while living, for his astronomical skill, had sacrifices offered up to his statue in Babylon when his remains were mingled with his native dust. This seems to have been the origin of the idol Bel, mentioned in the Bible; and
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from similar roots all the heathen deities seem to have sprung; as the Jupiter of the Greeks and Romans, the Osiris of the Egyptians, &c.

There are few things ever occurred in history that have more puzzled the curious enquirer to account for, than the great similitude between the rites, ceremonies, and sacrifices of the Hebrews, and those of the idolatrous nations. Some have imagined that the Hebrews adopted the rites of their neighbours; but this was strictly forbidden by their law: others have concluded that the Gentiles must have copied from the Jews; but the customs are older than the children of Israel.

If it be remembered that the patriarchs observed the seasons of the moon, brought offerings of bread, salt, wine, oil, the first fruits of the earth, and the firstlings of their flocks, as sacrifices or offerings of thanksgiving; erected pillars, altars, &c. by way of memorials, and called their children, as also certain places, by names expressive of singular providences; if it be considered that the Jewish manner of worship consisted of various rites and ceremonies, which were only considered as shadows, types, or figures, while they offered up adoration and praise to the Supreme Being; and that they also had their emblems or hieroglyphical figures, as the brazen serpent, symbolical cherubs, &c. we shall perhaps find it easy to believe, as history informs us, that mankind did not all at once fall into idolatry, but that many were preserved from it, long after the hieroglyphic signs were adopted: and numbers were preserved true worshippers during all ages, while they in some measure observed the customs of the nations having only regard to the symbolical sense.

The insignificancy, however, of human wit and learning, in matters purely religious, appears in a striking point of view, when we see the effects they had on the minds and manners of the Egyptians, and their successors, in the arts and sciences, the Grecians and Romans, &c. These very people seem at one time or other, to have been in the practice of the most licentious manners and abominable sacrifices, and to have been beclouded in the darkest superstitions.

The Egyptians, before the invention of letters, from their studious observations on the various properties of animals, plants, &c. on the geometrical affections of mathematical figures, and a consideration of the uses of various instruments also, had, with great ingenuity, derived a variety of devices or emblems; and by these disposed in certain attitudes, they could record matters very intelligibly to those who were acquainted with their hieroglyphic system. Thus, flames, which are ever moving, represented light and life; a globe with expanded wings, was the emblem of ether; the lion or bull indicated strength; the hawk swiftness, or the wind, &c. but unhappily for mankind, they introduced a mortal, their king Osiris, as an emblem of the Deity; his wife Isis represented the fertile natural world, and their son Orus, agriculture. To represent the incomprehensible attributes of the Most High, recourse was had to their

their emblems of wisdom, power, shapes, claps, the other particular design, stars, obelisks, easy characters, were, in some reverence, ancient symbols, occasions; &c. It was received the figures were meaning with real beings, tious worshippers. Many nations, ment, and Nile, and required the ans. The other parts, Joseph's brethren, the Phoenicians, Egyptians were in different appearances. Among the rites, and A day, we find the South Sea practice of yet, with all and practice and manner in their fall at the first; heroes, sometimes deified their evil heathens sometimes trons and If the C acquired a Egyptian h verity of thusiasm of in the form

their emblem Osiris; and accordingly as they wanted to represent wisdom, power, &c. they metamorphosed the emblem into monstrous shapes, clapping on it the head of a lion, bull, or bird, and altering the other parts of it to other animal shapes, as suited best their particular design. Their hieroglyphics they had depicted on their altars, obelisks, &c. and in their temples. When those simple and easy characters, the letters, were found out, emblematical signs were, in some measure, laid aside: it seems, however, that either in reverence for antiquity, or from a superstitious regard for the ancient symbols, they continued to use them on the most solemn occasions; as at funerals, in their public assemblies for worship, &c. It was at this period that the emblematical devices received the name of Hieroglyphics, *i. e.* holy writing. As the figures were now no longer in common use, it seems the symbolical meaning was soon forgot by the multitude, who mistook them for real beings, and accordingly they became the objects of their idolatrous worship.

Many nations had heard of the politeness, the wealth, the refinement, and also of the curiosities of Egypt; as the overflowing of the Nile, and their admirable works of art. Hither they resorted, acquired the learning, and imbibed the superstitions of the Egyptians. There was also corn in Egypt when famine prevailed in other parts, which brought numbers down in time of need, as Joseph's brethren: by these means, and by help of their neighbours, the Phenicians, a commercial people, it seems the manners of the Egyptians were transported to the different nations of the earth; and in different nations the superstitions and idolatry assumed different appearances, according to the genius or notions of the people. Among the Carthaginians, Allemans, Gauls, Ancient Britons, Moabites, and Ammonites, human victims were offered up; and, to this day, we find the shocking custom prevail among the inhabitants of the South Sea islands. The politer Greeks were not so much in the practice of those horrid customs: the Romans were still more clear, yet, with all their ingenuity, they were dupes of gross superstition, and practised, under the name of religion, the most licentious rites and manners. Yet we may sometimes see beautiful morals couched in their fables. Their gods were generally derived from mortals at the first; many of these were men of science, some kings, others heroes, some robbers, &c. and with these their female relations were often deified. When divine honours were attributed to mortals, their evil deeds were also remembered; and hence the gods of the heathens were represented, even by their own deluded votaries, as sometimes guilty of the most enormous crimes; at others, the patrons and lovers of virtue.

If the Greeks, in their refinement in poetry and the arts, had acquired a taste too delicate to relish the monstrous shapes of the Egyptian hieroglyphics, which had been rather produced by the severity of studious research than conceived with the spirit and enthusiasm of the artist; if the statuary at Athens arrived at elegance in the forming of the idols,—what was left of sublimity in the moral

moral of the Egyptians, seems to have exceedingly suffered from the unlimited freedoms of the licentious Attic bards. Fiction or romance appears to have been the spirit of their poetry; to give a plain historical account of events seems to have been too simple for the luxury of their muse; and hence the most enormous fables of the heathens appear to have been derived. Thus, if any died of grief, they were metamorphosed into rocks or trees. When an astronomer loved solitary walks, if by night, the moon was in love with him; if in the morning, Aurora. If a prince, or celebrated nymph, had been overcome by a ruffian or seducer, a god had been enamoured with her, and, to effect his purposes, had become a bull, dragon, shower of gold, or a swan. Ships were flying horses, men on horseback centaurs, lewd women syrens, or harpies, oranges, apples of gold, &c. &c.

It seems worthy of admiration that, in the midst of the monstrous fictions of the antients, wherein their deities were represented as perpetrators of the most horrid actions, there was still preserved among them a belief that, after their decease, in a future state pious mortals should be received into bliss; and wicked men be punished for their iniquities upon earth.

They held, that the souls of departed mortals went immediately to the shades, where Charon, receiving them into his boat, ferried them over the Acheron and Styx, to the realms of Pluto: here sentence being passed on them by the judges Minos, Eacus, and Rhadamanthus, they were either received into the delightful Elysium, among happy spirits, or handed over to the furies, Alecto, Megera, and Tisiphone, to be tormented in the dreadful pit of Tartarus, a dismal prison, surrounded with walls and gates of brass, and the flaming waters of Phlegeton.

Here, say they, the giants or Titans, who rebelled against Jupiter, are bound under everlasting chains; here, the ever-growing liver of the huge Tityus, who covers nine acres, is preyed upon by hungry vultures; here Phlegyas is doomed to sit beneath a huge overhanging rock, forever under the dreadful apprehension of being crushed to pieces by it; here Ixion, fixed on a still revolving wheel, is encompassed with serpents; here Sisyphus is doomed to roll up a huge stone to the top of a hill; this ever eludes his utmost efforts before he reach the summit, bounds to the bottom, and loads with despair the ill-fated criminal; here Tantalus, amidst profusion which he cannot taste, suffers the tortures of endless thirst and hunger: and here the Belides for ever labour in vain to empty a well with sieves.

To mention half, nay a fiftieth part of the monstrous absurdities of their poets, would fill volumes, and perhaps tend rather to corrupt than improve the minds of youth; but as the moderns, not only poets and artists, but also the plain writer of prose, will allude to the customs of the antients, and, in their zeal for figurative eloquence and emblematic delineations, call upon or exhibit again those fictitious beings, a short sketch of the heathen

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In Name.

Nox

Saturn

His wife Ops
Rhea, or
Cybelle
Aurora

Janus

Atlas

Jupiter, or
Jove

His wife

Juno

Neptune

His wife
Amphitrite

Pluto

theology may perhaps have its use. From Chaos, or confused heap, the antients suppose the universe arose; not only the natural world, but also their gods celestial, terrestrial, infernal, and marine. They held that Chaos brought forth Erebus, or night; and Terra, Gaia, Vesta, or the earth: from night sprung Ether, and the day; the goddesses Terra, or the earth, gave birth to Cœlus, Uranus, or heaven; Ourea, or the mountains; Pelagus, or the ocean; and Tartarus, or the great deep; all hereafter to be peopled by her offspring, the immortal gods that were yet to come into existence. They tell us that Cœlus had a son, Saturn, that rebelled against, and imprisoned his father, whom he succeeded in preference to his elder brother Titan; that Jupiter deposed his father, Saturn, and gave to his brothers, Neptune and Pluto, the government of the sea, and the secret abyfs. The Titans, or giants, they say, made war on Jupiter, and, in their attempts to scale the heavens, piled rocks upon rocks, mountain upon mountain, and darted flaming hot trees at the skies; but Jupiter, at length overcoming them, their most terrible champion, Typhon, was overwhelmed or buried under mount Etna; and to the struggling of the giant, in his uneasy posture, they attribute all the earthquakes and eruptions in Sicily. But, to avoid their endless labyrinth of preposterous fiction, it may sufficiently answer the present design to exhibit a sort of sketch of the names and particular characteristics of some of their principal gods, heroes, &c.

According to the heathen theology, their gods and goddesses, heroes, nymphs, and other fictitious beings, places, &c. were,

<i>In Name.</i>	<i>Presided over.</i>	<i>Had as characteristic Figures.</i>
Nox	{ the night, sleep, and dreams	{ fable robe, and chariot bespangled with stars
Saturn	—time and agriculture	{ bald pate and wings, in one hand a scythe, in the other a serpent
His wife Ops, Rhea, or Cybelle	{ the earth	{ her head crowned with towers, surrounded with animals
Aurora	—the morning	—golden car and rising sun
Janus	{ the year, bounds of cities, gates, &c.	{ two faces, in one hand a key, in the other a sceptre
Atlas	—the starry heavens	—the globe on his shoulders
Jupiter, or Jove	{ gods and men, but especially over thunder	{ the forked lightning grasped in his hand, and a sceptre and eagle
His wife Juno	{ women, marriage, child-birth	{ sceptre, Iris, or rainbow, and peacock
Neptune	—sea and horsemanship	{ his large shell-chariot and trident
His wife Amphitrite	{ his attendants, sea-gods and goddesses	{ the tritons and sea-nymphs
Pluto	{ the dead, elysium, and Tartarus	{ a sceptre, or wand, ebony-throne, or chariot

Pluto's wife Proserpine	{ the 3 Fates, 3 Harpies, 3 furies, and the 3 Judges	{ the boatman Charon, the three-headed watch-dog Cerberus, &c.
Ceres	—the harvest	{ sickle in one hand, ears of corn, or cornucopiæ in the other
Apollo	{ light, medicine, music, and archery the 9 Muses, 3 Graces, and 3 Syrens, Pegasus, or the flying horse	{ lyre, bow and arrows, wreath of laurel his offspring, Esculapius, Phaeton, Orpheus, &c.
His sister Diana	{ woods, forests, and hunting	{ crescent on her head, bow and quiver of arrows, dogs and nets
Mars His wife Bellona	{ battles, discord, and tumults	{ military habit, sword, spear, &c. blazing torch, or brand, trumpet and whip
Minerva, or Pallas	{ sciences, arts, and war	{ spear in her right hand, terrible Egis in her left, at her foot the owl, or cock
Mercury, or Hermes	{ merchants, commerce, rhetoric, oratory	{ Caduceus, wings at his cap and sandals
Vulcan	{ the forge, and mechanic arts	{ smith's hammer
His wife Venus	{ love and pleasure	{ Doves, or swans, the three Hours, her son, Cupid or Hymen
Bacchus	{ mirth and wine, Maenades, or Bacchæ	{ goblet, clusters of grapes, &c.
His wife Ariadne	{ Thyades, Satyrs. Fauni, Sileni, & Silvani	{ wreath of ivy and pine-leaves; Thyrsus encircled
Pan	{ shepherds, groves, and pastoral life	{ horns, goat's feet, crook and syrinx, or pipe

Hercules, renowned for his labours and strength, they represented leaning on his club, and on his shoulders the skin of the Nemean lion which he slew.

Hebe and Ganymede were cup-bearers to the gods, who fed upon nectar and ambrosia.

Momus was the jester, and made Olympus ring with the laughter of the celestials.

Proteus, the keeper of his father's (Neptune) cattle, could transform himself into various shapes.

Æolus was ruler of the winds; Eurus east, Zephyrus west, Boreas north, and Notus south.

Scylla and Charybdis (in reality a dangerous rock and whirlpool between Sicily and Italy) were beings also.

The Muses, Graces, and Loves, waited on the happy.

Gorgons, Hydras, and furies tormented the miserable.

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The highways had their lares, the houses their penates, and each man his genii.

The fields had their Fauni, the vineyards their Satyri, and the forests their Sylvani.

The nymphs were of various orders: over the mountains the Oreades presided, the Napæ over vallies and meads, the Dryades over forests; the Naiads were fresh-water nymphs, as the Nereids were of the sea.

The particular periods of time, the different ages and circumstances of life, the several parts of the body, the various implements of agriculture, all had their tutelary deities.

Indeed the whole universe seemed to swarm with these airy nothings.

Peace, Concord, Virtue, Honour, Faith, and Hope, had all their temples; Fear also had its votaries; Modesty and Silence had their altars; Calumny and Imprudence were also deified:

Nay, stables, dunghills, and sewers had their guardian gods.

To the idols which, as has already been remarked, had been in their life-time kings, astronomers, heroes, &c. were devoted, or ascribed every improvement in life, and all the various acquisitions of knowledge. Naturalists called the metals by their names; astronomers the planets; in the structures of their altars might be seen the progress of mathematical science; in the temples and statues the improvements of the arts. The orders of the priests were various.

The astrologers, through impious fraud or deluded imagination, assumed to foretell future events from astronomical observations. The augurs, in like manner, from the flight of birds, and uncommon appearances in nature, &c. The auspices from circumstances attending the sacrifice. Magicians, from the invocations of spirits, and various other ceremonies. Oracles were held in great reverence, and consulted on the conducting of public expeditions, as also in the ordering of private life; and the answer returned by the priestesses, or priests, was couched in dark ambiguous terms, with so much design, that the event, however it turned out, established the credit of the oracle, and imposed its imaginary divinity on the minds of the deluded and superstitious multitude.

While the polite and learned world was overrun with the worship of images, its superstitions were diffused over many parts of the earth. It appears that but very few, if any nations collectively, were preserved in the simplicity of the patriarchal manner of worship: some fell into the adoration of the works of creation only, particularly the heavenly bodies; and others, making no outward profession of worship, imagined that the spirit of their deceased ancestors mixed with the winds, and hovered round the scenes of their former lives and actions: in affliction, they remembered the days of former years, they repeated over the graves, in the enthusiasm of grief, the deeds of their fathers; bards, in their songs, celebrated their exploits as examples for future times.

182. *Primitive Christians.*] It is well known what opposition was made by the Jews to the doctrines of Jesus. Indeed what the

church endured at first from the heathen world, seems to have been generally at their instigation; but their influence or power was but of few years duration, when they themselves became the objects of the most cruel persecution. The simple doctrines, however, of Christianity, and the testimonies of the primitive Christians, were so contrary, and so directly opposed to the spirit, the maxims, and manners of the world, as to render them particularly obnoxious to their idolatrous neighbours and governors.

The religion of the nations was not merely a speculative doctrine professed in the schools, or preached in the temples. The innumerable deities, and rights of polytheism, were closely interwoven with every circumstance of business or pleasure, of public or of private life; and it seemed impossible to escape the observance of them, without, at the same time, renouncing the commerce of mankind, and all the offices and amusements of society. The Christian who, with pious horror, avoided the abominations of the circus, or the theatre, found himself, encompassed with snares, in every convivial entertainment, as often as his friends, invoking their deities, poured out libations to each other's happiness. If a Pagan friend (on the occasion, perhaps, of sneezing) used the familiar expression of "Jupiter bless you," he was perhaps obliged to testify the divinity of Jupiter.

If we cast our eyes over the numerous remains of antiquity, we shall perceive that, besides their idols and sacrificial instruments, the elegant forms and alluring fictions, consecrated by the imagination of the Greeks, were introduced as the richest ornaments of the houses, the dress, and furniture of the Pagans. The arts of music and painting, of eloquence and poetry, were destined to celebrate the glory of their deities and heroes. Even the common language of Greece and Rome abounded with familiar, but impious expressions, which the imprudent Christian might too carelessly utter, or too patiently hear. He considered every art and every trade that was in the least concerned in the framing or adorning of idols, as polluted by the stain of idolatry; from which it was his religious concern to keep himself pure and undefiled.

The dangerous temptations which, on every side, lurked in ambush, to surprise the unguarded believer, assailed him with redoubled violence on the days of the festivals. On these occasions, which were frequent throughout the year, it was the custom of the ancients to adorn their doors with lamps, and with branches of laurel, and to crown their heads with a garland of flowers. The superstitious observances of public or private rites were carelessly practised from education and habit by the followers of the established religion; but they afforded the Christians, as they occurred, an opportunity of bearing their testimony against them.

The people, who had to incur the displeasure of their friends as often as they poured out libations in their private convivial meetings, and who had, by their absence, or non-compliance, to bear a testimony against the idolatrous festivals and rejoicings (though the heathens, on these occasions, frequently threw them as offerings to the

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the offended majesty of their fictitious deities, to the lions on the theatres, already stained with the blood of beasts, and of gladiators,) had also to refuse a submission to laws which were contrary to their religious principles. When tribute was levied upon them for the express purpose of supporting the temples or sacrifices of the heathen, they could not renounce the sacred law of truth in their hearts for the imperial edicts of earthly monarchs, however sacred they might be accounted by a superstitious multitude.

Distinguished from the vain and licentious world in the plainness and frugality of their tables, their furniture, and dress, it seems the Christians were alike averse from the bustlings and pleasures of this world. The defence of our persons and property they knew not how to reconcile with the patient doctrine which enjoins an unlimited forgiveness of injuries. Their simplicity was offended by the use of oaths, by the pomp of magistracy, and by the active contention of public life; nor could they be convinced that it was lawful for them, on any occasion, to shed the blood of our fellow-creatures, either by the sword of justice or by that of war; and some were put to death for refusing to bear arms.

A sentence of death was executed upon Maximilianus, an African youth, who had been produced by his own father before the magistrate as a sufficient and legal recruit, but who firmly persisted in the declaring that his conscience would not permit him to embrace the profession of a soldier. And Marcellus, the Centurion, on the day of a public festival, threw away his belt, his arms, and the ensigns of his office, and exclaimed with a loud voice, that he would obey none but Jesus Christ, the eternal king! and that he renounced for ever the use of carnal weapons, and the service of an idolatrous master. The soldiers, as soon as they had recovered from their astonishment, secured the person of Marcellus. He was examined in the city of Tingi, by the president of that part of Mauritania, condemned, and beheaded for desertion.

The Christians decided among themselves the differences that happened between any of the brethren, being unwilling to expose them before the tribunal of an idolatrous judge.

A charity like that of the Christians, which provided not only for the necessities of their own needy brethren, the lame, the sick, the aged of the community, the widows and orphans, strangers and pilgrims, prisoners and captives, but which likewise maintained the heathen poor, could hardly fail to draw the attention, and force the approbation and esteem of the world. The Pagans, who were actuated by a sense of humanity, while they derided the doctrines, acknowledged the benevolence of the new society.

History informs us of the primitive Christians, that the want of human learning was supplied by the assistance of the prophets, who were called to that function without distinction of age, of sex, or of natural abilities; and who, as often as they felt the divine impulse, poured forth the effusions of the spirit in the assemblies of the faithful. The Christian worship of the Supreme Being was too sublime for the gross conception of the Pagan multitude, who

were at a loss to discover the object of their veneration, that was neither represented under any corporeal figure, or visible symbol, nor was adorned with the accustomed pomp of libations and festivals of altars and sacrifices.

The Christians were branded with the name of atheists, on account of their testimonies against the plurality of gods; accused of suicide, because of their cheerfully submitting to martyrdom; and impiously charged with the perpetration of the most abominable crimes in their religious assemblies.

To the capricious violence of the heathen, fidelity and resignation were opposed on the part of the Christians; and their numbers increased through every opposition. The divisions, however, that happened in their first assemblies, and the departure of some from the simplicity of truth, seem to have unhappily mixed together, in the obscure history of those early times, the pious zeal of the faithful in their testimonies against the superstitions of the heathens and the vanities of the world, with the weaknesses, absurdities, and the uncharitable severities of others professing the Christian name; and some of those called Fathers, in the moments of zeal, seem to have rejoiced in the idea of the future destruction of their enemies, and to have had but partial and contracted ideas of the universality of the divine love; while others breathed a Christian spirit, and acknowledged the pious among the heathen to have been instructed by the Logos, or word, by whom all things were made; and Justin Martyr, that valiant Christian, in the confidence of this truth, testified to the Roman senate that Socrates was a Christian.

The zealous fathers, as they are called, in their censures against luxury and pleasure, despised all knowledge that was not useful to salvation, and considered all levity of discourse as a criminal abuse of the gift of speech; gay apparel, magnificent houses, and elegant furniture, were supposed to unite the double guilt of pride and sensuality; false hair also, garments of any colour except white, instruments of music, vases of gold or silver, downy pillows (as Jacob reposed his head on a stone) white bread, foreign wines, public salutations, and the use of warm baths, were rejected. But of all the reformers from the manners of the world, Tertullian appears to have been the most rigid and severe: indeed, were the censures of that zealous man to be universally applied to the Christians of the present day, it should seem they would generally be involved in his reproofs. Speaking of the lofty buskin of the actors, he says they impiously strive to add a cubit to their stature; and the practice of shaving the beard, he says, is a lye against our own faces, and an impious attempt to improve the works of the Creator.

At length the emperor Constantine embraced Christianity; and the profession of the most holy faith became mixed with the political institutions of the earth; and it is a melancholy truth, that the professors themselves, in the course of their intestine dissensions, have inflicted far greater severities on each other than they formerly experienced from the rage of the Heathens.

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183. *Origin of Commerce.*] In the account already given of the origin of idolatry, something of the progress of arts and sciences has necessarily been related; the further advancement of these, the origin of civil governments and of commerce, may now be considered: the beginning of these improvements seem all to have originated in our weaknesses and wants.

Though man, in a state of nature not enervated by luxury or ease, arrives at a wonderful agility of body, and becomes capable of enduring amazing hardships and fatigue, yet, unassociated with his fellows, he is perhaps the most helpless of all living animals. Other creatures, defended against the inclemency of the weather by natural coverings of hair, feathers, &c. lie down on the bare earth, and take comfortable repose; they rise up and feast upon the pasture, or fall on their prey; while he, intended for more sublime enjoyments, finds imposed upon himself by necessity, what perhaps the eternal laws of truth and righteousness require secretly in the heart of every unbiassed and virtuous man; he must associate with his fellows; he cannot live altogether for himself; and whether strength and agility of body, or ingenuity and a delicate frame; whether a native bent of the mental powers towards quietude, vivacity, or patient thought; whether a genius active and dictatorial, or a disposition placid and submissive, mark the individual, all these, under proper restrictions, have their uses in society, and tend to the comfort and good of mankind. And it is worthy of admiration, that man, though so helpless, in a mere state of nature, is, associated with his fellows, the only living creature that sustains every climate, and who lives and multiplies in every country from the equinoctial to the poles.

The different dispositions and constitutions of men seem naturally to have produced in their intercourse with each other at an early period the households of the patriarchs, an order which was probably derived from mutual association, and which tended to the happiness of the whole. Perhaps we cannot imagine a more pleasing and desirable situation in this calamitous and evil world, than to be a member of such an association, where each individual knows the department he has to fill in the family, performs that office, and finds every other provision ready to his hand, whether his duty be some daily labour, or the more anxious task of superintendency and economy. A body of this sort the Christians, in the beginning, seem to have been; and they sent relief to the brethren at a distance. Some societies still form similar associations, and perhaps at calamitous seasons, true Christians having possessions, cannot hold back while they see their brethren labouring under distress: but they will again be religiously resolved into a people having all things in common, as at the beginning.

Commerce originating in the wants of mankind, most likely made its first appearance under the name of barter or exchange. The keeper of cattle would find an advantage in giving his milk, or the fleece of his flock, for the fruits of the earth; and an equal benefit would be hereby derived to the tiller of the ground. So early,

however, as the days of Abraham, gold and silver were substituted as a medium in trade: it seems in those times they had it only in bullion, and weighed it off in shekels, &c. and it was a later improvement to reduce it into coin.

Caravans of merchants, so early as the days of Jacob, travelled from Asia down into Egypt; for the brethren of Joseph, when they had cast him into a pit, and had sat down to eat bread together, they lift up their eyes and looked, and behold a company of Ishmaelites came from Gilead with their camels, bearing spicery, and balm, and myrrh; then passed by Midianites, merchantmen, and they sold Joseph to the Ishmaelites for twenty pieces of silver; and the Midianites sold him into Egypt, unto Potiphar, an officer of Pharaoh, and captain of the guards. The price which the merchants gave for Joseph being a certain number of pieces of silver, it seems the use of coin had now taken place, as well as the horrid traffic in the persons of men.

The Tyrians and Egyptians are generally said to have been the first that applied navigation to commerce: the Phenicians, it is true, were in antiquity, the most eminent navigators and merchants that appeared on the Mediterranean. Tyre was their crowning city, whose merchants were princes, and whose traffickers were the honourables of the earth; but some historians advance the probable conjecture, that the inhabitants of the peninsula of Arabia, shut out on one side from the rest of the world by sandy deserts, chose, rather than traverse those dreary wastes, to commit themselves in vessels to the waves, that they were the first navigators, and that the articles of commerce which the Tyrians vended over Europe, the ivory, the gold, the incense, spices, &c. were first purchased from the Arabians, who brought them from the East Indies to Egypt, by way of the Red Sea; through which channel also, it appears, Solomon derived immense wealth, by help of Hiram, king of Tyre.

The Greeks had their fleets too; but they appear to have been applied more to the business of war than to extensive commerce.

The Carthaginians, originally a colony from Tyre, extended their commerce over a great part of Europe. Sardinia, Corsica, with a great part of Sicily, were in their possession, and a considerable part of Spain was under their dominion. The Romans saw with admiration the superiority they derived from their fleets; and longed, like them, to be able to land their armies on distant coasts, till a Carthaginian vessel, wrecked on their territories, served this diligent people as a model. But these, like the Greeks, seem to have much confined their improvements in navigation to the purposes of war.

184. *Architecture, Learning, &c.*] Agriculture, the making of tents and management of cattle, seem naturally to have been the first employments of mankind. The use of metals, however, found out before the flood, soon enabled them to erect magnificent buildings: the smaller arts of life followed by slow degrees. These were generally

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rally the pursuit of private individuals; architecture was considered as of national importance, and often encouraged by princes for the preserving of their names to posterity, or to keep their restless subjects from sedition and rebellion, by keeping them busily employed in times of peace.

A very superficial view of history may serve to inform us, that genius and political refinement are not naturally peculiar to any particular climate or country. The Greeks, to whom the world is indebted for almost every improvement in the arts and sciences, were originally, perhaps, the rudest mortals that have lived since the flood, inhabiting dens and caverns. History informs us that they gleaned a scanty sustenance from the bounties of uncultivated nature, and often fell victims to want, to beasts of prey, and to the more savage fury of each other. It is said that they wandered about at large, like beasts in the forests, unacquainted with the tender ties which bind families together, the laws of association and marriage being unknown among them.

Colonies from Egypt and Phenicia, it seems, first introduced learning, arts, and laws into Greece; which proved a most kindly soil for these improvements. Here the researches of the Egyptians were prosecuted with steadiness, and a severity of investigation; hence they derived their astronomical skill; hence the salutary help of the surgeon's knife, and the kindly aid of the physician; here the captivating beauties of nature, the elegant living form, the luxuriant foliage of the field, the blooming tincts were caught by the ingenious and imitating Greeks, and again made to delight in sculpture and painting; their language they improved to an enchanting degree of eloquence; and the elegance in their poetic writings will probably command admiration while ever there are people that know how to read them: then how must they have charmed the ears of the Athenians, who irresistibly felt the full force of all their native beauties; and their music produced an enthusiasm which the moderns, with all their nice systematical divisions, cannot effect on their auditors; and which, perhaps, proves the simple unisons of the antients to have been vastly more agreeable to the pathetic of nature than all the refinements and multiplied concords of modern music!

Heretofore, the Egyptians and oriental nations had erected buildings of astonishing magnitude; it remained for the Greeks to add the delicate beauties of proportion and grace. The orders of architecture arose in Greece.

There are few people who have not sometimes found covert in the sylvan shades from the storm or scorching heat; and perhaps the first sheds of the rude Greeks in their forests, were these natural coverings, rendered still more comfortable by help of a little art, as the running of beams across from tree to tree, fixing upon these smaller boughs and branches, tying all together by means of twigs, and covering them with leaves, rushes, &c. Their fences from wild beasts were probably made in a similar way, by a kind of hedge from tree to tree. If the colonists introduced among them the use

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of mortar, and taught them how to erect buildings of stone; they probably remembered the beauties of their former mansions, the rising columns or trunks of trees, the architraves or beams running across, the luxuriant and natural festoon, and possibly they hence conceived the first designs of their most stately porticos and temples. Perhaps also, that very strange ornament, the ox's skull, which is used in architecture till this day, was derived from real ones hung up by their dwellings as trophies of valour, when it was a hardy adventure to engage with those brutes, as yet running wild, and bellowing in the forests; or indeed it may, in its origin, have had some allusion to their sacrifices. Simplicity to a poverty, as columns without bases, seems to have marked their first attempts before they arrived at elegance in architecture: the beautiful Doric order made its appearance first; the Ionic has been accounted the most elegant, as the enriched Corinthian was the last production of Grecian luxuriancy. That ornament the volute, in the capitals of these latter orders, is said to have been derived from the accidental circumstance of a girl leaving a basket covered with a tile on a bed of cillery; the plant on growing up, and being interrupted by the tile, having bent downwards, and assumed the spiral form. The ends of the beams in the first houses of the Greeks, appearing through the wall, is thought to have first suggested the idea of the Triglyph in the Doric entablature.

When the Romans, in their conquests, had planted their eagles in Greece, and brought off its most valuable productions of arts, the mistress of the world began to adopt the improvements of the vanquished; and Rome became the seat of learning, eloquence, and the polite arts.

In the reign of Augustus, the imperial city arrived at its highest pitch of grandeur; and from its shining at this time in arts and literature, not its giving laws to the world, this period is called the Golden Age of Rome. If the Latin poets fall any thing short of their predecessors the Greeks, it was most probably because these could not possibly be equalled in any language but their own; and, from similar causes, perhaps the productions of the Augustan age excel the most eloquent writings of the modern Europeans, though prejudices in favour of our native tongue, which we naturally understand the best, and an incapacity to feel those lost delicacies of a dead language, which depended only on the manner of expression, will scarcely allow us to prefer any to our own.

It is but a small part of the works of the antients, however, that have escaped the rage of barbarous times. The fury of the Goths destroyed what was curious and valuable at Rome; and the famous library at Alexandria, consisting 400,000 volumes, was after this, consumed by the flames of the destructive Saracens. To a few of the learned in Constantinople, we seem indebted for what we have preserved of the works of antiquity during those general devastations; and after these revolutions in the republic of letters, Europe, for about a thousand years, seems to have scarcely produced any thing towards the advancement of science. A night of

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Gothic darkness overspread the countries once famous for learning and the arts, philosophy was accounted dangerous among the professors of Christianity; literature sought an asylum in the Mahometan world, and the works of the ancient and learned philosophers of Greece, translated into Arabic, were cultivated under the auspices of the Caliphs of Bagdat, when their doctrines were in Europe accounted impious and heretical.

185. *Germans in their native Wilds.*] When the learning and arts of the imperial city were overwhelmed by the rude northern conquerors, Goths, Vandals, Germans, &c. its language and manners, its laws and customs, also underwent a remarkable revolution; and by the intermixture of the rudeness and refinement in the conquerors and the vanquished, the whole face of Europe seems to have assumed quite a new appearance, in which the Gothic features were by far the most striking; and indeed these appear in some measure to predominate in the national characters of modern Europe to this day.

It seems the ravagers of Rome, before they left their forests, formed in their native wilds a number of distinct tribes or clans; each community governed by a sovereign, and its particular districts by chieftains, seemed like a particular family or household. Private landed property was not known among them, as with some American Indians; so with those it was a law or usage that they should jointly cultivate the ground together, and that the produce should be distributed among them at the discretion of the magistrate, according to their necessities or merits; that, headed by the chieftain, the vassals should cheerfully defend their sovereign, and repel an hostile enemy from their territories. Powerful tribes granted tracks of land to others, on the tenure of their associating with them in a military capacity, when the exigencies of the state required their assistance: and this, it appears, was the remote origin of the feudal system.

The Germans, while they exercised the strictest justice in their own tribes, and at home the most generous and unreserved hospitality, seem to have accounted it valorous and just to annoy and plunder those whom they were not bound to protect; to fall upon these, and drive off their cattle were the feats of their youth; and the spoil was received with pleasure at home, as the booty of privateers is at this day welcomed into port with clamorous huzzas, while the merchant abroad, with his family and friends, is involved in ruin.

In the assemblies of state, the voice of the people was to be attended to by the council, the magistrate, or sovereign: a coarse murmur, and often rude, expressed their dissent: the rattling of their armour was the flattering mark of their applause. The women were allowed the privilege of debating in these assemblies; and this has been accounted the source of those restrictions which the modern governments of Europe have been under, while the monarchs of Asia and Africa were despotic; and this is the beginning of

of those privileges which the European women have of possessing even the regal dignity.

Their meetings were commonly accompanied with a feast : a custom which continues to this day with juries and courts : in these they used to drink to excess ; and in the disgraceful moments of debauch, mistaking the effects of liquor, the impudence it produces for dignity of manners, and violence for valour ; their swords used to stain their festivals with blood. It seems it was in these rueful ages that the custom of drinking healths had its origin. In applying the cup to the mouth, and drinking, the body was peculiarly laid open to attack ; and in those violent times it was not safe for the individual to be quite off his guard. When he could not defend himself while swallowing the liquor, in the confidence of friendship, he deputed another, addressing his friend, " I pledge thee," says he, taking hold of the cup ; or " I pledge my life in thy hands ;" and immediately on this signal his friend drew his sword, to defend him from sudden assault. The manners of aftertimes changed the custom into stated and formal expressions of benevolence ; and, worse than formality, the dissipated moderns often seem to swallow the potion as a drink-offering to party-faction, to obsecrancy and debauch, under the name of Toasts and Sentiments.

Ever violent in his disposition in the times of peace, the German flung himself with impetuosity on the fatigues of the chase ; ches and dice were his amusements in the hours of leisure : to these he gave himself up with equal violence ; he sported away his cattle, his furniture, his armour, and would at last risk his person or liberty on a single throw ; and in case it went against him, to suffer himself to be bound, chastised, and sold to slavery by his weaker and more lucky antagonist, was a point of honour with him ; and hence the forfeitures incurred in gaming, that destroyer of the peace of individuals, and of families connected with them, are, to this day, termed Debts of Honour.

The solemnization of their marriages was by mutual presents from the bride and bridegroom, in the presence of their friends and relations, who had previously given their consent to the match. Their women were eminent in the discharge of their domestic concerns : they inculcated chastity on the minds of their daughters, and rehearsed to their sons the valorous deeds of their ancestors. Ardent to signalize himself in warlike exploits, the youth longed to be free from the cares of his mother. To take up arms and mingle with the men, was a privilege too great for him to assume, merely as his own choice or inclination directed ; the council of the district or canton to which he belonged, inquired into his qualifications and age ; and if he was deemed worthy of being admitted to the honour of being a soldier, a chieftain adorned him with the shield and lance : and this it seems was the origin of knighthood.

Animated with courage, and full of vigour, while they sported with and gloried in the toils and hardships of war, they treated their women with affection and respect : the praises of these were the laurels of the hero, and their disapprobation covered the coward

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with confusion and disgrace. In the time of engagement, they took their stand near the field, and lifted up by their presence their warriors to victory : they appeared at the sports, where the young and the valiant were urged by the points of the lance and the sword, to feats of desperate agility and boldness ; and the panting and wearied youth besmeared with dust, with sweat, and with blood, seemed amply rewarded for his hazards, if he won but the smiles and applause of the fair ; and hence the gallantry of the knights, and the jousts and tournaments in the feudal times.

Full of the pomp and stateliness of behaviour which military parade naturally inspires, the German, when he walked, seemed conscious of importance ; he cast his eyes to the ground, and looked not around him for the objects of a vain and frivolous curiosity, To treat him with indignity and disdain, was to offend him mortally. He could bear no stain on his personal character ; an affront of this kind covered him with infamy if he forgave it ; the blood of his adversary could alone wash it away ; and he called upon him to vindicate his charge or to perish. Hence the murderous duel, by law forbidden, but by pride kept up to this day. Doubtful contests before the magistrate were referred to a combat : he ordered them to prepare for battle, made a signal for the onset, and gave his award to the victor. The doubtful charge of infidelity brought by the husband, could in this way be disputed with him by the relations of the wife. Indeed they imagined, in these their barbarous contests, that the Divinity must interfere in behalf of innocence and virtue ; and the contests of the priests for the place of sovereign druid, were decided in the same rude and violent way : and hence the judicial combat once universally adopted over Europe.

Unacquainted with any profession but that of war ; disposed to it by habit, and impelled to it by ambition, the German never parted with his arms ; and hence the wearing of a sword is to this day, in Europe, a fashionable part of dress. They accompanied him to the senate-house, as well as the camp, and he transacted not without them any matter of public or private concern. They were the companions of his manhood, when he rejoiced in his strength ; and they attended him in his age, when he wept over his weakness. Of these the most memorable was the shield : to leave it behind him in battle, was to incur an extremity of disgrace, which deprived him of the benefit of his religion, and of his rank as a citizen. It was the employment of his leisure to make it conspicuous ; he was sedulous to diversify it with chosen colours. Upon this, frightful figures, and the achievements of the hero were rudely delineated to strike terror on the enemy ; and hence the system of heraldry, the blazoned armorial bearings, or the coats of arms.

The theology of the Germans was full of the marvellous, as well as that of the politer Romans, whom they subdued. The deep and silent recesses of their woods were appropriated to their devotion ; and here human sacrifices were sometimes offered up by the Druids, who assumed to draw prognostics from the blood of the victim as it poured forth ; as also from the running of water, the flight of birds, and

and the neighing of horses. It is asserted, however, that the victims were criminals, and that the day of their death was a day of public mourning.

If the Romans had their Janus, their Saturn, &c. to whom they dedicated their times and their seasons, these had their Tuesca, Wodin, Thor, and Freya, to whom they ascribed similar honours; and the idolatrous dedication of both are still kept up among the European nations, in giving days and months to the heathenish names; as Sunday, Monday, Tuesday, &c. January, February, March, &c. when the sacrifices have ceased, and the protection of the idol is invoked no more.

If the antients in their fictions had their satyrs, sylvans, fauns, &c. our Gothic ancestors, in their superstitious fears, fancied enchanters, giants, magicians, and dwarfs; elves, fairies, and sprites; and the terrific horrors which their romantic legends of dreadful giants, haunted castles, dismal adventures of the knights errant, to relieve distressed damsels from enchantment, &c. handed down from generation to generation, by the credulous, and impressed on our imagination at an early period, often make the stout heart of the soldier to tremble, or the firmer mind of the philosopher to shrink with fear, if, cast on dreary and unfrequented wilds in midnight darkness, or by the pale moon, which serves to light up objects of terror to his affrighted imagination, he have to wander alone, at a distance from home and every cheerful haunt of men; and these tormenting fears are felt when the tales are forgotten, and the absurdities despised.

The Gothic Elysium, or Paradise, seems to have exceeded in romance all that was ever fabled of the regions of Pluto; thither they transferred their gallantry, carousing, and arms, which afforded them such delight on this side of the grave. In this happy place, say they, the heroes every day, as soon as they have dressed themselves, take their arms, and, entering the lists, fight till they have cut one another to pieces. This is their diversion; but no sooner does the hour of repast approach, than they remount their steeds, all safe and sound, and return to drink in the palace of Odin, where the Valkyriæ, beautiful virgins, pour out their liquor to the heroes.

SECTION XXI.

Middle and Modern Times, exhibiting the rude Manners of the Feudal Times, with the gradual Advancement of Europe in Arts, Sciences, and Commerce; and the Secession of the Protestants from the Church of Rome.

186. *Revolutions, Feudal System.*] When the rude northern warriors had poured forth like a deluge from their native wilds, and taken possession of the more cultivated territories of the south of Europe, and

and of the northern parts of the continent of Africa, the change of their affairs on their new acquisitions, necessarily forbade their former regulations from continuing among them. Heretofore a nation or tribe, from their simplicity of manners, could wander about as inclination or the chace directed: now even the private individual must know his home, attend to the concerns of his own particular family, and only appear in public when the exigencies of state and the call of his chief required his presence.

Formerly, valour or wisdom procured the public esteem and confidence; now other distinctions, besides those of personal abilities and virtue, must mark out the individual for the tribute of respect or adulation. Property must be able to stamp the title of Lord upon a few, and its absence mark out the rest of mankind to do them homage.

On the conquests of the Goths, tracks of their new possessions were allotted to their chieftains who had distinguished themselves in the enterprize; these were called also real or property. Much remained still to dispose of; these were called the lands of the fief, or the property of the community at large, and as such, committed to the charge and disposal of the sovereign. These he granted, under the name of fees, to his favourites, on condition of furnishing him with military force, when he should have occasion to engage with his enemies. The feudal possessors disposed of these in smaller portions to their vassals, on the same military tenure. At first the grants were revokable at the will of the donors; and while cordiality and confidence remained between the sovereign and the barons, and between these and their vassals, the feudal system was a powerful association for the practice of war, and fraught with the seeds of intestine divisions, which afterwards broke out, and for a time rendered a great part of Europe one continued scene of calamity and desolation. The feudal lords soon extorted from the sovereign a confirmation for life of those lands which, being at first purely gratuitous, had been bestowed only during pleasure; and not satisfied with this, they prevailed at length to have them converted into hereditary possessions.

Contests frequently happened between the lords; and these were decided in private wars. They summoned their vassals to buckle on their armour, and appeared at their head to decide the dispute in the field; and as shelters to flee to from sudden invasions, or when the battle went against them, castles were raised in their several districts.

In the feudal times, the leaders of the people in the day of battle were, in times of peace, the arbiters of justice; they appointed courts in their particular districts, and assumed to dispense laws to the people. A few imperfect traditionary and local usages alone influenced the will of the baron; and disputed points were referred to a combat between plaintiff and defendant; or, to prove his innocence, the culprit was to plunge his arm in boiling water, to lift a red-hot iron with his naked hand, walk blindfolded and barefooted over burning plowshares, or keep his arms extended for a full hour before

before a crucifix, without any support. These dreadful experiments were called appeals to Heaven, and entered upon with a great form of devotion; and whoever escaped unhurt, or came off victorious, was pronounced to be acquitted by the judgment of the Deity. This was called the Ordeal, which, with the judicial combat, long prevailed in the courts of Europe.

The Christian religion, which they had embraced, as it was now professed, prevented not these dreadful calamities: the nobles, superior to all restraint, harrassed each other with perpetual wars, oppressed their fellow-subjects, and humbled or insulted their sovereign. Yet these, with all their state, could neither read nor write, so little remained of literature in Europe; and when a grant was to be confirmed by charter, when they could meet with a clerk or learned man (for so they termed any that could read or write) to negotiate this learned and important business, the baron or sovereign, in proof of his sincerity, and that he might be solemnly bound to fulfil the engagement, what he could not subscribe by writing his name, he formally marked with the sign of the cross: a custom observed by the illiterate at this day; and hence the subscribing an article is called Signing.

What vestiges of the literature of the antients might have escaped the first fury of the illiterate Goths, seem, during these times, to have fallen under a violence equally or perhaps more desolating. The Saracens having obtained possession of Egypt, the Europeans were deprived of paper, which they used to derive from the papyrus, a plant of that country. Parchment was scarce, and former writings (perhaps a book of Livy or Tacitus) were crased, to make room for new compositions.

186. *Crusades.*] It was in these calamitous times that the crusades took place; expeditions which engaged the attention of Europe, and ultimately brought about a wonderful change in its governments, laws, sciences, and manners in general. Before this period, its several nations had but little acquaintance with each other. Unassociated by commerce, and unrestrained by general laws, intestine broils had harrassed the people, and prevented refinement and a softness of manners from taking place among them. Now impelled by the same zealous motives, not only the gallant nobles of the age, with their martial followers, whom the boldness of a romantic enterprise might have been apt to allure; but men in the more humble and pacific stations of life, ecclesiastics of every order, and even women and children, engaged with emulation in an undertaking which was deemed sacred and meritorious. Six millions of persons assumed the cross, the badge that distinguished the zealous adventurers: and the endless little disputes which had stained the several cantons of Europe with blood, were now lost in one large common cause. The first efforts of valour, animated by enthusiasm, were irresistible: part of the Lesser Asia, all Syria and Palestine, were wrested from the Mahometans; and the banner of the cross was displayed on Mount Sion.

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While we read with concern of the mistaken zeal of the adventurers, who, from a partial regard for a particular spot of ground, could devote the lives of thousands to the sword, and perhaps implant a prejudice in the minds of the Mussulmans against the most holy and peaceful religion, which is not yet removed from their breasts, we shall perhaps treat with affection and respect the amiable weakness of the first leader of these expeditions. Godfrey of Bourlion, a young and valorous prince, having, at the head of the numerous armies of Europe, taken possession of Jerusalem, in the profusion of the honours which his adherents heaped on him (and in those days heraldry was putting forth its vain and gaudy blossoms) in the midst of youth and military splendor, he declared that "he would not wear a diadem in that city where his Saviour had been crowned with thorns."

187. *Refinement of Manners.*] When the crusades had associated the different nations of Europe together, what remained of magnificence or refinement in the east, by this intercourse naturally circulated to the western part of the continent. The first rendezvous of the adventurers was commonly in Italy, in which Venice, Genoa, Pisa, and other cities had begun to apply themselves to commerce, and had made some advances towards wealth as well as refinement. They embarked there, and, landing in Dalmatia, pursued their route by land towards Constantinople. This magnificent city flourished greatly in commerce: it was the only mart in Europe for the commodities of the East Indies; and here curious manufactures were carried on. Again Italy copied Greece, and disseminated its arts over the rest of Europe, when the eastern empire was reduced under the dominion of the Turks.

When the attention of Europe was turned to the recovery of Palestine out of the hands of the Mahometans, it would have been accounted flagrantly impious to have raised commotions at home. In the mean time, the barons being deeply engaged in these remote enterprises, some having even disposed of their patrimonies, in order to prosecute these expensive expeditions, the sovereigns were gradually rising into power. Another most effectual crush of the insolence, of the nobles, and beginning of refinement in modern times, was the enfranchisement of cities, and forming them into bodies corporate, with the privilege of a decisive voice in enacting of laws. The manumission of the husbandman from the debasement of slavery, which they groaned under as a political institution, was a later refinement in the manners of Europe: a refinement which, it is to be lamented, is not yet universally adopted in the northern parts of the continent. The gentle spirit of the Christian religion, together with the doctrines which it teaches concerning the original equality of mankind, as well as the impartial eye with which the Almighty regards men of every condition, and admits them to a participation of his benefits, are inconsistent with servitude. The humane spirit of the Christian religion struggled with the maxims and manners of the world, and contributed more than any other circumstance to introduce the practice of manumission. The form

of liberating the slave was executed in the place of worship with solemnity, and considered as an act of piety highly meritorious, and acceptable to Heaven.

As many of the professors of Christianity have in later times, unhappily adopted the practice of enslaving the poor helpless natives of Africa, and, in defence of the cruel business which degrades humanity, persuaded themselves that our brethren, the negroes, are a race of men inferior to Europeans in natural rights, it may be well for us to recur to the days of our ancestors, and see the complexion our climates produce, whether it always stamped on its possessors the dignity which modern Europeans assume, when they compare themselves with the people they call Savages. In the feudal times, the number of slaves in all the nations of Europe was prodigious; they composed the greater part of the people; and their lot was extremely oppressive and mortifying. Distinguished from freemen by a peculiar dress, they were also obliged to shave their heads; and by this distinction they were reminded every moment of the inferiority of their condition. The life of a slave was deemed of so little value, that a very trivial compensation atoned for taking it away. On very slight occasions they might be put to the rack on question: their masters had absolute power over their persons, and could punish them with death, without the intervention of any judge. They united together in matrimony as husband and wife, but were not allowed the much-revered ceremony of a priest; and themselves and their offspring were equally at the disposal of their master, who could transfer them like cattle or any other property.

188. *Laws.*] When the Germans embraced the profession of Christianity, they held the priests in a veneration similar to what they had paid to the Druids in their forests: what little remained of the laws and the learning of the Romans, was in the possession of the ecclesiastics, who formed a regular system of jurisprudence, which, in contradistinction from the proceedings of the civil courts, was called the Canon Law. The arbitrary decision of the martial tribunals of the barons, from which there was no appeal, and the mildness and equity of the proceedings in the ecclesiastical courts, established in regular orderly gradation, and through all which a cause might be carried by appeal until it was determined by that authority, which was held to be supreme in the church, intimated to the people the value of well digested laws.

The sovereigns aimed at a regular national code, and encouraged appeals from the courts of the barons: these by degrees sunk into contempt, while the royal courts, originally ambulatory, were held in fixed places and at stated seasons; and by the regularity of their proceedings, and the equity of their decisions, became the objects of public confidence. Statutes were enacted for abolishing the practice of private wars. By degrees, the judicial combat and ordeal-trial were laid aside, and the manners of Europe gradually refined.

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letters studied the new science with eagerness, and were rewarded for their labours with the honours which had heretofore been considered as peculiar to military valour. In a few years professors of civil law were appointed, who taught it publicly in most countries in Europe. The dignity of knighthood, deemed a distinction superior to royalty, and which monarchs were proud to receive at the hands of their private gentlemen, was alike conferred on the warrior and the man of science.

It was in those days that benefit of clergy was instituted. The book was handed to the convicted felon to read before the court. If he performed this, the clerk pronounced aloud, *Legit ut clericus* (he reads as a clergyman); and the criminal was acquitted.

189. *Knight-Errantry, Heraldry, Academies, &c.*] When the power of insolent nobles was not yet reduced under the domination of laws, their castles would, according to the manners of the owner, be regarded as seats of generosity and hospitality, or dreaded as dens of violence and oppression. In those days the knights turned out in succour of distress: the same spirit of enterprize, which had prompted some to take up arms in defence of the oppressed pilgrims in Palestine, incited others to declare themselves the patrons and avengers of injured innocence at home. And when the Mahometans had prevailed in the contests for Jerusalem, and driven the Christians out of Asia, the knights became errant; they wandered about in quest of opportunities for asserting the cause of the feeble and oppressed, the widow and fatherless, ecclesiastics, &c. who could not bear arms in their own defence. Their romantic and hazardous enterprizes were accounted equally religious and valiant: they purchased the hero universal respect: the tables of nobles and sovereigns were open to the adventurer, and they won him the company and esteem of the women. Valour, humanity, courtesy, justice, and honour, were the characteristic qualities of chivalry. Knighthood was conferred upon the brave and the virtuous with great solemnity, in the public places of worship, by the hands of kings, who now began to be considered as the fountains of honour. These rewarded the heroes with their countenance, and adorned their shields with new achievements: by these armorial bearings families were distinguished: devices, emblematic of the qualities of the hero, or expressive of his feats, began to be multiplied, and heraldry became a system for flattering of pride, and for marking out unbecoming distinctions among mankind, scarcely less complicated, though far less ingenious than that of the Egyptian hieroglyphics in antiquity.

Few marks of learning adorn the Gothic escutcheon; it exhibits no great show of geometrical lines or figures of improved machines, or instruments of science. Chivalry, in which valour, gallantry, and religion were so strangely blended together, was better acquainted with crosses, crosslets, and shells, with ribbons and filets, and locks of the hair, and other little presents of their ladies, with beasts of the chase, and instruments of war, than with matters of science. A monkish figure, with a book, or some such childish device, seems

to have been the grandest monument they were able to erect in the system of heraldry to the honour of learning. Their ancestors used to wear skins of beasts round their shoulders, and to adorn their helmets; hence the crest, and the furs or drapery hanging round the escutcheon. The supporter of the shield was the hero who bore it on his arm in the field; he might be strong like a bull, and the family of his wife as fierce as lions, and equally concerned with himself to support the escutcheon unstained; and heralds have fixed two supporters to the shield, which are sometimes beasts, birds, &c. as well as human figures. They used to fall on in battle with a shout of some sentence; and hence the motto in coats of arms.

The vanity of human nature seems soon to have conceived the idea of distinguishing honourable offices among mankind with external marks of distinction, as crowns, sceptres, &c. These shadows of power obtained among the antients; and the man of the public had naturally the title importing his office; but our Gothic ancestors seem, in defiance to nature and to truth, to have reduced epithets or qualities, which are inherent things, to a mechanical system, and applied them indiscriminately to every various disposition of man; and to this day the people, copying the manners of their fathers, will seriously apply the titles of Honourable, Reverend, Noble, Excellent, Gracious, Most Gracious, &c. without so much as knowing, or having heard of the character of the officer; the laws of heraldry have established the titles, and the usages of the people coincide with the absurdity.

When the Europeans had become so far changed in their manners as to be capable of relishing improvements in science and letters, the languages of the antients were studied with avidity. In the cathedrals and monasteries, schools were erected, and the learned were rewarded with lucrative emoluments and academical honours in the colleges and courts; caps, gowns, bands, &c. distinguished the learned professor; and the titles of Bachelor, Master, Doctor, &c. were conferred according to his proficiency, and called his Degree. In the places of worship, the Latin tongue was generally used. The modern languages of Europe were yet rude and uncultivated. The works of the learned in those days were written in the Latin; which, though they were not comprehended by the multitude at home, could be read by the learned all over Europe. The antients, those copiers of nature, particularly the Greeks, had first listened to and cultivated the beauties of their own native language before they entered upon the more severe sciences: this naturally produced elegant historians and poets. Our ancestors, on the contrary, delighted in abstruse metaphysical speculations, incomprehensible to themselves and to every body else: and while they were precisely acquainted with the most minute grammatical distinctions of the antients, and indeed every thing but their beauties, their own rude languages, produced by the unkindly jumbling together of different and contrary tongues, remained uncultivated and unrefined. They loaded science with pedantic rules; and

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and the natural and easy forms which logic and rhetoric assume, they anatomized into wearisome divisions, which the universities now think fit to lay aside. In those days genius, unloaded with learning, was necessarily shut out from the temple of science; pedantry was mistaken for wit; and a memory charged with preposterous analysis, for a mind fraught with valuable information.

190. *Arts, Sciences, Commerce, &c.*] It was in latter times that the nations of Europe applied themselves to the cultivation of their own languages, to the study of mathematics, and to physical researches. They had already become familiar with the writings of the ancients, and hence derived beauties to their own. Their advances or improvements in science they soon acquired, and pursued their enquiries far beyond what the philosophers of Greece or Rome had ever conceived. Chemistry, derived from the Arabians, laid open to them the minute wonders of the works of creation: the discovery of the mariner's compass, in the beginning of the fourth century, led to improvements and discoveries which the ancients were unacquainted with. The invention of gunpowder, about the same time, while it quite altered the business of war, and perhaps rendered it less destructive than heretofore, gave them a superiority in the laborious works of the mine; and to these the world will perhaps be indebted for that necessary article coal, when peace and population shall have planted fields of corn and cheerful towns in the place of solitary forests and boggy meres. The fifteenth century was remarkable for producing the valuable discoveries of printing, and engraving upon copper; arts whereby the learning and improvements of ancient and modern times, the representations of works of art and of natural productions, are exhibited, and, what we ought to prize above all, the records of the gospel are hereby diffused abroad among mankind. During this period, commerce appears to have undergone some considerable revolutions. When Constantinople, the mart of Europe, had fallen into the hands of the Turks, the trade and improvements of the Greeks devolved upon their neighbours the Italians, or Lombards. Companies of these, and the Jews, settled in different countries, and carried on the commerce of the world. To the ports of Egypt the rich productions of India were brought; and from hence they were taken and distributed over Europe by the Lombard-merchants. The nations that lie round the Baltic, and along the coasts of the northern seas, distinguished themselves early as an enterprising maritime people. The depredations of these, under the names of Danes and Normans, or Norwegians, have been severely felt in these islands. It is said that they were well acquainted with the coasts of North America long before that continent was discovered by the southern nations of Europe; and their contiguous situation with their business of fishing, so necessary for their support; and the island of Iceland, lying between their country and America, reducing one long perilous voyage to two less hazardous and tedious, seem to give the account the appearance of probability.

About the middle of the thirteenth century the spirit of commerce awoke in the north. To defend themselves against the pirates which infested their seas in those times, the cities of Lübeck and Hamburg entered into a league of mutual defence; in a short time eighty of the most considerable cities, scattered thro' those vast countries which stretch from the coast of the Baltic to Cologne on the Rhine, acceded to the confederacy: this was called the Hanseatic League, and the towns which composed it, Hans Towns.

This confederacy became so formidable, that its alliance was courted, and its enmity dreaded by the greatest monarchs. The members of this powerful association, formed the first systematic plan of commerce known in the middle ages, and conducted it by common laws, enacted in their general assemblies. They supplied the rest of Europe with naval stores, and pitched on different towns, the most eminent of which was Bruges in Flanders, where they established staples, in which their commerce was regularly carried on. Thither the Lombards brought the production of India, together with the manufactures of Italy, and exchanged them for the more bulky but not less useful commodities of the north. The Hanseatic merchants disposed of the cargoes which they received from the Lombards in the ports of the Baltic, or carried them up the great river into the interior parts of Germany.

As Bruges became the centre of communication between the Lombard and Hanseatic merchants, the Flemings traded with both in that city to such extent, as well as advantage, as spread among them a general habit of industry, which long rendered Flanders and the adjacent provinces the most opulent, the most populous, and best cultivated countries in Europe.

By alluring Flemish artizans to settle in his dominions, as well as by many wise laws for the encouragement and regulation of trade, Edward III. gave a beginning to the woollen manufactures of England, and first turned the active and enterprising genius of the people towards those arts which have raised the English to the highest rank among commercial nations.

In the latter part of the fifteenth century, the Portuguese discovered a passage to India by the Cape of Good Hope; and about the same time, the Spaniards, attempting to sail thither by the west, under the adventurous and steady Columbus, a native of Genoa, fell in with America, and called it the New World and the West Indies, to distinguish it from India in the east. From this period, the western nations of Europe appear to have increased in political consequence, to have improved in arts and sciences, and to have flourished in commerce: they acquired possessions in the opposite quarters of the earth, and became acquainted with every climate in the world. It was the interest of the people whose possessions were thus enlarged, to improve with diligence the art of navigation: but the perfect knowledge of this extensive science, includes that of almost every other. Whatever observations are made in contemplating the starry heavens, in measuring of lines, superficies, and bodies on the surface of our earth; whatever discoveries in the physical

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physical world, and whatever improvements in the science of mechanics, even the study of languages and a knowledge of mankind, their complexions, manners, and dispositions, their countries, laws, commerce, &c. all seem peculiarly interesting to the mariner. Fixed to no particular soil, he takes up his abode in one of the completest pieces of mechanism that human wisdom has produced; it is his chariot, his house, his labour, and his toy; in this he commits himself to the deep; he gives his sails to the winds, and observes with attention the phenomena of nature; he converses with the stars; they are his guides as he traverses in his bark the pathless ocean; and, by mathematical calculation, he knows the distance of his desired port.

It is perhaps owing to commerce, more than any other object, that modern Europe has advanced to the highest improvements ever yet attained in arts and sciences: this had rewarded the artizan for his ingenious production; the wandering sailor for his toils and perils, and the man of science for his most painful researches. The Portuguese gave themselves early to the study of naval affairs. These and the Spaniards, from their intercourse with the Mahometans, who long maintained their dominions in Spain, seem for a time to have been able to instruct the other nations of Europe in astronomy and other sciences; but these diffused experiments multiplied, and gave to the moderns a superior knowledge of the laws of nature in works of art, and in mathematical theses. By help of optical instruments, they pushed forward their observations in the starry heavens, and also laid open the minute works of creation. By the prism, the child became delighted, and the philosopher contemplatively amused. Bounding to the tops of mountains, by help of glasses, youth extended his prospects over distant lawns and waters with delight; and feeble old age remaining below, by the same artificial help, read with comfort and ease the page that would otherwise have been an uninteresting blank, through failure of sight. The dreadful lightning, which strikes affrighted mortals with astonishment, and sometimes with blindness and death, by electrical machines was produced in a smaller degree, and thus applied to the kindly purposes of health. They waited no longer with anxiety for the coming of sunshine to mark out on the dial the hour of the day; whether the sky was cloudy or serene, the passing hours were marked out as they rolled along, by the help of clocks: to these they gave a voice, and the clang of the hours diversified the silent watches of the night, as well as the season of business and labour. The changes of the weather were pointed out to the husbandman in his cottage; he saw by his barometer the approach of rain; and by counsel of these silent and philosophic monitors, he prepared for the business of dry weather, when his fields were yet drenched in water, and the rains not yet ceased. No longer, as in ancient times, need "two women be grinding at the mill," that is, bruising corn to powder with great labour, between a couple of stones or flags, by hand. Rivers and brooks of water are arrested in their progress, and made to perform that

painful office as they hasten to the deep. And so far do they excel in the science of mathematics, that even the tumults of war, as well as the affairs of commerce and the arts of navigation, are reduced by the moderns to a regular system; and poor mortals are made to destroy one another by mechanical rules.

191. *Secession from the Church of Rome.*] The sixteenth century is remarkable for the secession of Martin Luther, and after him John Calvin, from the church of Rome. In this age the diet of Spire also protested against the doctrines of that community, and hence the name of Protestant is derived.

In England, Protestants were numerous in the fourteenth century; they were called Lollards, from Walter Lollard, who preached in Germany about the year 1313; of these was John Wickliffe, rector of Lutterworth. He translated the Bible into English, and wrote commentaries upon it: his doctrines spread over England, and a great part of Europe.

The church of Rome, during many centuries—to relate, on the one hand, the ambition, intrigues, and wars of some of their popes; the corruptions and licentiousness of some of their clergy; their gross superstitions and severe persecutions: to declare, on the other, the laudable zeal of others of their ecclesiastics in reforming the superstitious, barbarous, and bloody manners of our rude Gothic ancestors; their pious examples in liberating slaves and succouring distress. The Protestants—to tell their faithfulness through much suffering, their divisions, and their falling off, when they acquired political consequence, to the unchristian practice of persecution, in which so many thousands of themselves had suffered death, and of which very few of the professions kept perfectly clear: to exhibit all these alike, exceed the design of this work, and the capacity of the writer.

192. *Gathering of the Friends.*] Since the secession already mentioned from the church of Rome, another, perhaps more remarkable, though accompanied with less violence, has taken place in the Christian world. About the middle of the last century, a number of unlearned men and women appeared in England, declaring against the different establishments and observances of that day, whether derived from the authority of Rome, Oxford, or Geneva, or from the doctrines of those who were called Dissenters, under different names. They were particularly distinguishable from other professors, in renouncing war and worldly vanities, in receiving the doctrines of baptism, communion, unction, &c. in a spiritual sense. They held that words were not necessary to worship, and waited in silence, in their religious assemblies, for the influence of the holy spirit on their minds. They maintained, that every man had this internal monitor, or divine light, within him; and that all who were obedient to it, in every age and country, and of whatever religious profession, were true believers, and formed the true Christian church.

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France
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Portugal
Switzerland
Italy
Hungary
European
Turkey

PART VI.

DESCRIPTION OF EUROPE.

IN the fluctuating changes of human affairs, Europe, though by far the least, stands at present the most eminently distinguished quarter of the globe, in its superior skill in sciences and arts, and consequently in its commerce and political consequence. Here also the profession of the Christian name is more generally diffused than in any other part of the earth. Its languages seem as mixed as its revolutions have been various, and all derived from these six original ones and their different dialects, viz. the Celtic, Slavonic, Teutonic, Greek, Latin, and Gothic. Europe is bounded on the west by the Atlantic Ocean, on the north by the Icy Sea, on the east by Asia, and on the south by the Mediterranean, which separates it from Africa. It is situated between the 10th degree west, and the 65th east longitude from the meridian of London, and between the 36th and 72d degrees of north latitude, extending about three thousand miles in length, and of two thousand five hundred in breadth. Its divisions are as follows:—

Countries.	Length. miles	Breadth. miles	Chief Cities.	Latitude.		Longitude from Greenwich.	
				D. M. S.		in Degrees. D. M. S.	in Time. H. M. S.
England	360	300	London	51 31 0 N.		0 5 37 W.	0 0 22½ aft.
Scotland	300	150	Edinburgh	55 57 57 N.		3 12 15 W.	0 12 49 aft.
Ireland	285	160	Dublin	53 21 11 N.		6 6 30 W.	0 24 26 aft.
Norway	1000	300	Bergen	60 11 0 N.		5 45 0 E.	0 24 0 bef.
Denmark	240	180	Copenhagen	55 40 45 N.		12 35 15 E.	0 50 21 bef.
Sweden	800	500	Stockholm	59 20 35 N.		18 3 55 E.	1 12 16 bef.
Russia	1500	1100	Peteriburgh	59 56 0 N.		30 19 15 E.	2 1 17 bef.
Poland	700	680	Warsaw	52 14 0 N.		21 0 30 E.	1 24 2 bef.
Prussian Dominions	uncertain		Berlin	52 32 30 N.		13 26 15 E.	0 53 45 bef.
Germany			Vienna	48 12 40 N.		16 22 30 E.	1 5 30 bef.
Bohemia	300	250	Prague	50 4 30 N.		14 45 0 E.	0 59 0 bef.
Holland	150	100	Amsterdam	52 22 45 N.		4 45 30 E.	0 19 2 bef.
Flanders	200	200	Brussels	50 51 0 N.		4 21 45 E.	0 17 27 bef.
France	600	500	Paris	48 50 14 N.		2 20 0 E.	0 9 20 bef.
Spain	700	500	Madrid	40 25 0 N.		3 25 45 W.	0 13 43 aft.
Portugal	300	100	Lisbon	38 42 25 N.		9 9 59 W.	0 36 40 aft.
Netherlands	260	100	Bern	40 0 0 N.		7 40 0 E.	0 28 0 bef.
Italy	750	400	Rome	41 53 54 N.		12 29 15 E.	0 49 50 bef.
Hungary	300	200	Buda	47 20 0 N.		19 22 0 E.	1 17 0 bef.
European Turkey	1400	730	Constanti- nople	41 0 24 N.		28 53 49 E.	1 55 35 bef.

SECTION XXII.

British Isles.

The British Isles lie on the west of the continent of Europe.

192. *Inhabitants.*] The people may be considered under two different descriptions: 1st, The aborigines, or the descendants of the first possessors of the isles; as the Welch, Scotch, and Irish, all speaking dialects of the Celtic language: 2dly, That mixed race, the English, descended from every emigrant, robber, and adventurer that invaded the land, whether Roman, Saxon, Dane, or Norman. This medley of nations and languages forms the major part of the people, is at the head of affairs in national proceedings, takes the lead in sciences and the arts, and whose manners are considered as the national character, is daily increasing by the former mixing with them.

The English, from the humidity of their atmosphere, and the great use they make of animal food, are perhaps, constitutionally, more phlegmatic, or less sprightly, than those whose aliment is lighter, and who breathe a drier air. On the other hand, they are said to be more thoughtful and patient of fatigue, and consequently better fitted for arduous undertakings and tedious researches; but when we consider what other cultivated nations have done in severer sciences, and what the English have produced in poetical composition, we may be induced to blend them together in description.

The help afforded by the English to the sick and poor in their hospitals, buildings equal to palaces, and munificently supported by voluntary contributions, is happily not singular; other nations have infirmaries; but the parochial provisions made by law for the maintenance of the poor in South Britain, appears an exemplarily charitable institution. Well would it be if it were always supported in a Christian-like manner, if it were generally diffused all over the isles, and indeed all over the world: and their humane societies, numerous dispensaries, and charity-schools, do honour to the present age.

194. *English Constitution.*] By the constitution of these realms, the king is at the head of all national affairs; there can be nothing done without him. He is the centre of union to the whole legislative body; and the executive power, whether ecclesiastic, civil, or military, is entirely vested in him. He is also the fountain of honour.

In entering into the detail of the English constitution, we may prefer the description of it which is applicable to Ireland, rather than of that which is established in Great Britain. In that island the laws are the same throughout the whole realm, and there is only one church of political establishment. The national ecclesiastical establishments in North and South Britain are different; and the civil law is not the same in these two different parts of the island.

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Ireland is an independent kingdom, and is governed by its legislative and executive powers.

The legislative power is lodged in three different branches, which must all concur in every act of legislation: these branches are,

I. The king.

II. The lords of parliament (for there are peers who are not lords of parliament, as Roman Catholics and minors; who, as such, have no seat in the House of Lords; and there are lords of parliament who are not peers, as the archbishops and bishops.)

III. The commons, or the representatives of the people, elected and delegated by them.

Each of these branches has certain rights; those of the king are called prerogatives, and those of the lords and commons are stiled privileges.

The prerogatives of the king (as a branch of the legislature) are these,

1. The king alone has the power of convoking the parliament, and fixing the time of its place and meeting, which is done by writs issued out of the High Court of Chancery, at least forty days before it is to sit.

2. The power to prorogue the parliament.

3. The power to dissolve the parliament.

4. The power to assent to, or dissent from, any bill passed by the lords and commons; but he cannot alter it.

5. The power to originate a bill; but that can be only an act of grace or pardon, which is sent down to the lords, who can give it but one reading, and must either agree to it in the form sent down, without any alteration, or reject it; and such act is in the same predicament in the house of commons.

6. The power of suing a lord of parliament, or a member of the House of Commons for his debt during the sitting of parliament; but he cannot arrest the person.

The lords have the privilege of voting by proxy if they are absent; and the privilege of entering on the journals of the House of Lords a protest against any vote or bill passed therein.

In coming to or going from parliament, if a lord passes through any of the king's forests, he has the privilege of killing one or two of the king's deer.

They are free from all arrests for debts, as being the king's hereditary counsellors. A peer therefore cannot be outlawed in any civil action; and no attachment lies against his person; but execution may be taken on his lands and goods. They are free from all attendance at court leets and sheriff's turns, or from attending the service of the *posse comitatus*.

In criminal cases they are tried only by their peers, who give in their verdict, not upon oath, as other juries, but only upon their honour.

To secure the honour, and prevent the spreading of any scandal upon peers by reports, there is an express law, called *scandalum magnatum*; by which any man convicted of that crime (though even the report

report should be true) is condemned to an arbitrary fine, and to remain in prison till the same be paid.

The privileges of the Commons, or representatives of the people, are,

1. The freedom of speech in their house; for no commoner can be questioned out of the House for any thing he may say in the House of Commons.

2. The privilege of being free from arrests in their persons, not only during the sitting of parliament, but for forty days after each prorogation, and forty days before the next appointed meeting. But any member of parliament who is a trader, may, notwithstanding his privilege, be served with legal process for any just debt, to the amount of 100*l.* and unless he make satisfaction within two months, it is deemed an act of bankruptcy, and a commission of bankruptcy may be issued.

3. Access to the king; for every commoner can ask and obtain a private audience of the king in his closet, on any important business.

4. The franking of letters.—The last two belong to the lords also.

This branch of the legislature had its beginning in the disputes of the barons and kings of England for power. It was in the reign of Henry III. son of king John, that the commons were first assembled in parliament; their specific powers at that time were hardly ascertained; but succeeding kings thought it well to court the affections of the people, and countenance the commons; and this most effectually repressed the power of the barons, who had hitherto insulted the sovereigns, and harassed the country with perpetual wars.

The privileges of the parliament, or whole legislative body united, are these,

1. The power of making, confirming, enlarging, restraining, abrogating, repealing, reviving, and expounding of laws, concerning matters of all possible denominations, ecclesiastical or temporal, civil, military, maritime, or criminal.

2. The power of regulating, or new modelling, the succession to the crown, as was done in the reigns of Henry VIII. William III. and Queen Anne.

3. The power of altering the established religion of the land, as under Henry VIII. Edward VI. Mary I. and Elizabeth.

4. The power of changing the constitution of parliaments themselves—as in the several acts for triennial and septennial elections in England, and the octennial act in Ireland. In short, the power of parliament is absolute, and no authority is legal which is not derived from it.

All bills affecting the rights of the peerage, are to originate in the House of Lords, and are not alterable by the Commons. All bills that do not tax, or raise money on the subject, may originate in the House of Lords.

The House of Lords is the highest court of judicature, to which appeals may be made from all other courts; and the House of Commons is the grand inquest of the nation. Also each House is the guardian of its own privileges, and can punish every breach of them, done either by its own members or any other person.

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The King of Ireland is also King of Great Britain, Arch Treasurer and Elector of the Roman Empire, by the title of Elector of Hanover, Prince of Zelle, Callenburg, and Grubenhagen, Duke of Brunswick Lunenburg. Count of Harburg, Diepholtz, Hoy, Danneburg, and Catzellenborghen, and Duke of Saxe Lawenburg.

In some of these places his power is more absolute than in others.

To assist the King in the exercise of his constitutional power, both legislative and executive, he has a council, called the Privy Council. The members of it are made such by the King's nomination, without patent or grant. On taking the oath they immediately become Privy Counsellors during the life of the King, but subject to removal at his discretion. They take the oath for the security of the constitution, and test for the security of the church. The business of a Privy Counsellor may be known from the oath he takes, which is in these words:

"I will advise the King to the best of my cunning and discretion. I will advise for the King's honour, and good of the public, without partiality, through affection, love, meed, doubt, or dread. I will keep the King's counsel strict. I will avoid corruption. I will help and strengthen the execution of what shall be there resolved, and withstand all persons who would attempt the contrary; and I will in general observe, keep, and do all that a good and true counsellor ought to do to his sovereign lord."

It is felony in any of the King's servants or household to conspire to take away the life of a Privy Counsellor, even though nothing should be done upon it; and also for any person to unlawfully attempt to kill, or to unlawfully assault and strike, or wound any Privy Counsellor in the execution of his office; and the law is, that on being convicted, they shall suffer death.

The Privy Council hath a power of certifying to the King all such acts as have passed the two houses of parliament, in order for the royal assent or dissent—of inquiring into all treppasses and crimes against the government—of issuing proclamations for the execution of all acts of constitutional regal authority—to lay on embargoes, grant money for support of public (or private) credit, to commit delinquents against government, in order for legal trial—also to hear and determine on all causes on appeal to the King in his council. For this purpose they hear counsel, both on the side of the crown and the party, for which there is allowed for extra attendance on the council, to the Attorney-General, the Prime Serjeant, and the Solicitor-General, an annual sum of 176*l.* 11*s.* 11½*d.* each.

In all debates in the Privy Council, the lowest Counsellor delivers his opinion first, and they then proceed upwards to the King (or the Lord Lieutenant, his substitute) who then declares his judgment, which terminates the matter debated.

The executive power of government is exercised by the King, and those to whom he delegates any part of his power, which is either ecclesiastical, civil, or military.

The prerogatives of the King as the executive power, are these:

I. As

I. As head of the politically established church, the King has the prerogative of convening, proroguing, restraining, regulating, and dissolving all ecclesiastical synods, or convocations.

Of nomination to all vacant archbishoprics, bishoprics, and certain other ecclesiastical preferments, and

Of being the last resort in all ecclesiastical causes: for an appeal lies ultimately to the King, in chancery, from the sentence of every ecclesiastical Judge.

II. As the fountain and distributor of law, and general conservator of the order of the kingdom, the King has the prerogative of,

1. Erecting courts of law.

2. Of nominating judges (but he cannot remove them, unless on the address of both houses of parliament).

3. Of being the general prosecutor (by his Attorney General) of all public offences and breaches of the peace, as is so laid in every indictment.

4. Of issuing proclamations for the execution of any known law, or being the general executioner, by his sheriffs, justices, constables, &c.

5. Of being the fountain of honour, of rewarding his partizans with titles and privileges, hereditary and personal.

6. Of establishing public marts, or places of buying and selling, and fairs for the same purpose.

7. The regulation of weights and measures.

8. The coining and ascertaining the value of money.

9. The receipt of the public revenue, and the expenditure thereof, according to act of parliament.

III. As generalissimo and high admiral of the realm, the King has the prerogative of appointing to all military and marine offices and jurisdictions.

He has the prerogative of sending and receiving ambassadors, making treaties; declaring war; granting letters of reprisal and marque; granting safe conduct, and opening and establishing ports and havens.

Hence it appears that the executive power is divided into the ecclesiastical department, the civil department, and the military department.

I. The ecclesiastical department is divided into provinces, or circuits of an archbishop's jurisdiction; dioceses, or divisions of a province, into sees or suffragan bishops, each of which contains one or more archdeaconries, which are again divided into parishes.

To the archbishops, bishops, and archdeacons belong sundry courts, called general spiritual courts—All other courts are held by the King's authority, and writs run in his name; but ecclesiastical courts are not deemed the King's courts, for the writs issue in the Bishop's name—And where, as in temporal courts, there are several judges, each Bishop is sole judge in his own court; and he may depute his authority to another, and appoint a chancellor, commissary, register, &c. which none of the secular judges can do. In trials of bastardy or heresy, the certificate is sufficient: and if a clergyman kill his bishop or ordinary, it is held as parricide, and is petty treason.

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The privileges of the clergy in general are these :

A clergyman cannot be compelled to serve on a jury, nor to appear at courts leet, nor be chosen to a temporal office. During his attendance on divine service, he is privileged from arrests in civil suits. In cases of felony he may have the benefit of his clergy, without being branded in the hand, and may likewise have it more than once.

The ecclesiastical courts take cognizance of and give sentence on ordinations, institutions of clerks to benefices, celebration of divine service, and all that relate to churches, matrimonial rites, divorces, bastardy, probates, and administration of wills, simony, blasphemy, adulteries, incests, fornications, and defamation.

The several courts now in Ireland are the metropolitan court of Armagh, the consistory court of Dublin, the high court of delegates, and the prerogative court. Besides these, every bishop hath his own court, over which his vicar-general presides.

II. The civil department comprizes two grand branches, law and revenue.

The law professes to protect public and private rights, and to punish public and private wrongs.

For this purpose it hath sundry courts, officers, persons, and offices.

Law also comprizes equity; and the courts are either general, that comprehend the whole kingdom; or particular, that affect particular persons and places.

Except in courts martial and ecclesiastic, and those of chancery, juries are accounted supreme judges in all courts and in all causes in which the life, property, or reputation of any man is concerned. All criminal causes must first be tried by a grand jury, which commonly consists of twenty-four men of greater wealth than that which those of the petit jury are required to be possessed of. If they find him innocent, he is discharged; if otherwise, they only find an indictment, on which he is tried, and finally acquitted or convicted by the verdict of the petit jury. When the evidence is summed up, and the charge given by the judge to the jury, if they be not unanimous, they are to be shut up together till they become of one mind. The consequences of this barbarous law may be disorders and death, for they are deprived of meat, drink, fire, and candle, as well as of the company and speech of all other people.

The courts of justice observe nothing but the strict letter of the law.

The court of chancery is accounted a court of mercy, in which causes are tried, not according to the strictness of the law, but according to the rules of equity.

The chancery has two courts in one. The equitable part being instituted for the relief of the subject against cheats, breaches of trust, and unfortunate accidents; to temper the rigour of the law, and to rescue men from oppression. In the other, all patents, various commissions, deeds between parties touching lands and estates, treaties with foreign princes, &c. are sealed and enrolled. Out of it issue writs to convene the parliament. In one part the proceedings were formerly in Latin, when the court proceeded by the known laws and customs of the land; for which part there are officers called curf-

tors,

tors ; but now all is done in English : and the equity proceedings go by English bill, for which there are six clerks.

The form of pleading in this court is by petition, bill, examination of witnesses, and subpoena ; by which the defendant is summoned to appear and answer the complainant's bill : upon neglecting thereof, there issues an attachment to compel him. This not being obeyed, there issues an attachment with a proclamation : and if the defendant still continues contumacious, the court will award against him a proclamation of rebellion ; upon which he is sent to prison.

In this court the Lord High Chancellor is the sole judge. He is the chief magistrate in the kingdom. He is appointed by patent, and holds his office *durante bene placito*, i. e. during the king's pleasure. When he appears in public, the mace and great seal are carried constantly with him ; and he is said, from his equity, to be the keeper of the king's conscience. When causes are removed into chancery, he overrules, by his *ipse dixit*, the decisions of juries in the other courts.

Other courts sit only in term-time, out of which they have no power to act as courts of justice, unless by special commission ; but the court of chancery is always open ; so that if a man is wrongfully imprisoned during a vacation, the Lord Chancellor may grant his writ of Habeas Corpus, and do him justice according to law.

Although the Lord Chancellor is the sole judge, yet he has five assistants, called Masters of the Rolls, and Masters in Chancery, who have salaries, fees, and robe-money out of the exchequer. These were all anciently doctors of the civil law ; and their business was originally to inform the Lord Chancellor of the equitable part of the civil law.

The first of these officers is called Master of the Rolls, as having the custody of all charters, patents, commissions, deeds, and recognizances ; which being made into rolls of parchment, gave occasion for that name. Subordinate to him are the *custodes rotulorum*, or keepers of the rolls of the several counties, a secretary, register, and usher ; and he has the gift of the six-clerks office, the examiners office, the clerk of the petty bag, and the clerk of the rolls, or keeper of the records in the Birmingham tower, in Dublin castle.

The masters in chancery take depositions ; and to them is referred the examination of accounts depending in this court, of which they make their report in writing. In term-time one or more of them sit in the court with the Lord Chancellor, at some distance from him ; and out of term also, when he hears causes at his own house.

The above officers, with some others, are commissioned to hear and determine causes in the absence or at the death of the Lord Chancellor, that the course of justice may not be interrupted.

Besides the ordinary masters in chancery, there are masters extraordinary, and commissioners of affidavits, to do their business in the country parts of the kingdom.

The officers next in degree to the masters in chancery are the six clerks in chancery, whose duty is to enroll all patents, commissions, licences, pardons, and other instruments that pass the great seal ; and they have clerks under them.

The

The other officers of this court are,

The clerk of the crown, who by himself or deputy is always to attend the lord chancellor, for special matters of state. He makes out writs for the election of members of parliament, commissions for distributing justice, general and special pardons.

The prothonotary, or proto-notary, i. e. the first notary. [This office subsists in Great Britain, and expedites commissions for embassies. As no embassies are sent from Ireland, the office is dormant.]

The register, whose office is generally executed by deputies, giving constant attendance in court, and taking short notes, called minutes, which they afterwards draw out at length into orders, containing the opinion of the court in the matter debated. It is their duty also to engross, file, and keep the decrees, orders, and injunctions issuing out of this court.

The examiners who examine witnesses, according to the interrogatories delivered to them to examine the parties thereupon; and put their answers and depositions into writing.

A clerk, and a comptroller of the hanaper, vulgarly called the hamper. The clerk's office is to receive all money due to the king for the seals of charters, patents, commissions, and writs. He attends daily in term time, and at all times of sealing, with leather bags, in which are put all sealed patents, charters, &c. and those bags are delivered to the comptroller of the hanaper, who also receives all returns of writs of members of parliament when they are elected. In Ireland these two offices are united, and joined to the clerk of the crown.

Clerks of the petty bag, who make out all patents for customers, &c. and commissions for assessing of taxes, and writs for the nominating of collectors.

A master of the subpœna office, who makes out all subpœnas.

A master of the affidavit office, who files all affidavits sworn before a master in chancery.

A clerk of the patents, who prepares, engrosses, and exemplifies all patents or grants from the king, for any new invention or discovery.

A curfitor, who makes out original writs.

A clerk of the alienation office, where fines are set, and monies received upon writs of covenant for alienating any estate in the kingdom, as due to the king for his license or consent: and

Commissioners of bankruptcy, who are twenty-five in number, and have officers under them.

The court of king's bench, (next to the house of lords in parliament) is the highest court at common law. The king anciently sitting in person in this court, and now virtually by his judges, it is called the king's bench. Here the pleas, that are between the king and the subject, are tried and judged. All treasons, felonies, breach of the peace, and misgovernment are commonly brought before this court; and also all errors of the judges and magistrates in Ireland, in their judgment and proceedings, not only in the pleas of the crown, but in all other pleas (the exchequer excepted). In this court all lawyers who have been called to the bar, are allowed to plead and practise. In this court belong four judges, who hold their offices by writ, and

not by patent, *quamdiu se bene gesserint*, i. e. as long as they behave themselves well; so that they are not to be displaced until some misconduct has been fully proved; and this renders their judgment responsible to the law only, and not to the crown.

The court of common pleas, is so called, because the pleas usually here debated are between subject and subject, and that according to the strictness of law. Here all civil causes, real and personal, are usually tried, and real actions are pleadable in no other court. Nor are fines levied or recoveries suffered but only in this court, at the court itself, at the judges chamber, at the assizes, or by special commission out of chancery.

This court has also four judges, each holding his place by patent *quamdiu se bene gesserint*.

There are two courts held in the exchequer; the court of equity held in the exchequer chamber, and the court of law, before the barons.

The exchequer, besides being a court of both law and equity, is at the heart of the state, receiving and issuing the whole of the revenue which is in constant circulation through it, and therefore this part of the exchequer is referred to the second grand branch of the civil department, named the revenue.

Besides these there are also circuit courts twice in every year, (and sometimes oftener, by particular commissions. Law is, as it were brought home to every man's door, in the several counties of the kingdom, the twelve judges going for that purpose, by commission from the crown of oyer and terminer (or to hear and determine) all treasons, murders, felonies, and misdemeanors—and of gaol delivery, directed to the justices of assize, to try every prisoner for the offence, for which he or she stands committed, and to deliver (or clear) the gaol.

The judges of these circuit courts are seldom the same for two circuits following, as the judges chuse the circuits among themselves.

The other particular courts are those of sheriffs, mayors, and aldermen, court leets and court barons.

For the support of the civil and military establishments, there is certain revenue paid to the crown, in consequence of acts which originate in the house of commons, as being the grants of the people and certain fines and forfeitures, which form a casual revenue.

This revenue arises from customs and excise, stamp duties, post duties, licenses, fines, first-fruits, tenths, and forfeitures.

All the money arising from these is paid into the treasury of the exchequer, and issued from thence, an audited account of which is annually submitted to the scrutiny of parliament.

III. The military department includes the navy, as well as the army.

The court of admiralty decides all causes that arise at sea out of the jurisdiction of a county. The lord high admiral, or commissioner of that office, is the supreme judge of it, and acts by deputy.

The court martial is for punishing desertion, mutiny, and other offences in the army and navy. In this court, the delinquent has not the benefit of a jury, and in time of war, the king has a most absolute and arbitrary power in it.

As those who are in the navy or army, have lost their most valuable civil privileges, and fallen under a despotic government; so they are able to be associated with those who have forfeited their rights as citizens. Government itself does not consider this line of life as respectable, for criminals also, in punishment for their offences, as well as honest unoffending men, are forced into the king's service.

The sheriffs are annually appointed by the crown. It is the business of the sheriff to execute the king's mandates, and all writs directed to him out of the king's courts of judicature; to superintend elections; to impanel juries; to bring causes and malefactors to trial; to see all sentences, as well civil as criminal, put in execution. He likewise collects public fines, distresses, and amercements into the exchequer, and makes payments out. As his office is judicial, he also keeps a court for the purpose of hearing and determining all civil causes in the county under forty shillings; but which, however, is no court of record. The bailiffs are his officers, and he is himself the king's bailiff.

The coroner's office resembles the sheriff's, and when any exception can be taken to the latter for partiality, he becomes the sheriff's substitute; for then the process must be awarded to him, instead of the sheriff, for executing the king's writs. It is his peculiar business to make inquest, by means of a jury of neighbours, how, and by whom any person came to a violent death, and to enter it on record as a plea of the crown.

Justices of the peace are also appointed in every county, by the king's special commission, the principal of whom is the custos rotulorum, or keeper of the records of the county. To them is entrusted the power of putting in execution great part of the statute laws relative to the highways, felonies, &c. and of examining and committing to prison, such persons as are found guilty of breaking or disturbing the peace, and disquieting the king's subjects.

Constables are the next officers appointed for keeping the peace. They can imprison offenders, till they are brought before a justice; and it is their duty to execute, in their respective districts, every warrant directed to them from any magistrate, or a bench of justices.

The civil government in cities is something different from that of the counties, being directed according to their respective charters granted by different princes; with this limitation, that civil causes may be removed from their courts to the higher ones; and all capital offences are committed to the judges at the assizes. Some cities are counties of themselves, and chuse their own sheriffs. The mayor, aldermen, and burgeses collectively make the corporation of the city, and in their court of judicature, the mayor presides as judge.

Incorporated boroughs are governed almost after a similar manner; some of them by a mayor, and others by two bailiffs only; all which, during their mayoralty or magistracy, are justices of the peace within their respective liberties.

For the better government of villages, the lords of the soil or manor have generally a power to hold courts, called leet and baron, where their tenants attend, in order to obtain justice. The business of courts leet is chiefly to prevent and punish nuisances; and at courts

baron, the conveyances and alienations of the copyhold tenants are enrolled, and themselves admitted to their estates, on a descent or purchase.

Causes are usually brought into the ecclesiastical courts either by citation, or by the presentment of the church-wardens. The parties are called the *promovent* and *impugnant*; and when the latter has appeared to the citation, the former gives in his libel or charge, and prosecutes it in a plenary, or in a summary way. The *impugnant* then gives in his answer, and witnesses are examined, and issue joined, and the cause tried, and a decree made.

In civil courts, when the plaintiff commences an action, if the jury find a bill of indictment, the court orders the sheriff to take the body of the defendant, or bail for his appearance. The plaintiff then declares upon his action, and the defendant makes his plea; after which the bill may be amended, or there may be a reply to the plea, and rejoinder to that reply, &c. till the cause is brought to an issue, in fact to be tried by a jury; or in law, to be tried by a consultation of judges, when judgment is given, and if not laid aside, is enrolled, and execution issued, &c.

In chancery, the suit commences by bill, and proceedings in other courts are stopped by an injunction; then a subpoena issues to bring the defendant, and he must appear by his fix-clerk to give in his answer. The plaintiff files his exceptions to it, and it is referred to the master of chancery, to judge if it be a sufficient answer. The plaintiff replies, and the defendant rejoins, and witnesses are heard and examined, and the cause set down for a hearing and heard, and a decree is made, and a writ of execution is issued.

The government of the kirk of Scotland is in the hands of ministers and elders. They have also their tithes or tithes, and also judicial courts, as in episcopal establishments. The courts established by law are the four following, viz. kirk sessions, presbyteries, provincial synods, and a national or general assembly. This establishment, at various periods, proved so tyrannical over the people, having the power of the greater and less excommunication, which were attended by forfeiture of estate, and sometimes of life, that the kirk sessions and other bodies have been abridged of many of their dangerous powers. The ecclesiastical order and government in the kirk of Scotland, however, seem far more impartial than that of episcopacy. None of the livings exceed three hundred pounds a year, few fall short of sixty, and none are less than fifty.

They are called *presbyterians*, from their maintaining that the government of the church, appointed in the New Testament, was by presbyteries; that is, say they, by ministers and ruling elders, associated for its government and discipline; and accordingly none of the ecclesiastics, considered as an individual, has an authoritative jurisdiction over another. Jurisdiction is competent for them only when they act in a collective body, or as a court of judicature; and there is a subordination of one court to another, or appeals from the inferior to the superior courts.

195. *Religious Professions.*] Beside the churches of England and Scotland, which have a political establishment, and whose powers are interwoven with those of the civil constitution, there are numerous other societies which exist in their religious capacity independent of the state; to describe all these, would be to give the history of almost every modern profession of the Christian religion. It would be difficult even to tell the names of these various societies. They are called by the general names of Papists or Roman Catholics, Independents of various kinds, Seceders, who are burghers or anti-burghers, Anabaptists or Baptists, Methodists, Moravians or the Brethrens Unity, and Quakers or Friends. There are other more minute distinctions made among this multitude of opinions, under names which import the different leaders which have been followed, or the opinions embraced; as those of Lutherans, Calvinists, Arminians, Sandemanians, Unitarians, Predestinarians, Antinomians, Arians, Socinians, &c.

196. *Revenue.*] The ordinary public revenue of Great Britain, from taxes, customs, excise, crown lands, &c. amounts almost to 20 millions a year, yet it is little more than adequate to the ordinary expenditure, including the interest paid upon the national debt. During war, and upon all occasions of extraordinary expence, a much greater revenue is wanted, and is procured by borrowing.

The national debt derived its origin from a mode of finance adopted soon after the accession of William III. From several expensive and political engagements about that æra, the expences of government were increased to an unusual degree, insomuch that it was deemed dangerous to raise all the expences of any one year by taxes, to be levied within that space of time, lest the unaccustomed weight of them should create murmurs among the people. It was therefore projected to anticipate the revenues of posterity, by borrowing immense sums for the current service of the state, and to lay no more taxes on the subject, than would suffice to pay the annual interest of the sums so borrowed; thus converting the principal into a new species of property, transferrable from one person to another at any time, and in any quantity. Such was the foundation of what is now called the national debt; for a few long annuities, created in the reign of Charles II. by no means deserve that appellation.

The clear net produce of the several branches of the revenue of Ireland, after payment of all charges of collecting and management, does now amount annually to one million. The national debt is rather more than two millions. In the reign of Charles II. the revenues were being all made perpetual, the parliament was dissolved; and during the space of twenty-six years, no parliament sat in Ireland until the year 1692, when the increase of the civil and military establishment, and other charges of government, having considerably exceeded the produce of the hereditary revenue, the crown found it necessary to call upon parliament for further supplies, which being granted on articles subject at the time to hereditary duties, were called additional duties, and their produce was given for one, two, or three years only, and renewed every session, without further extension, until after the year 1715, when the commons of Ireland passed a

vote of credit for the sum of 50,000*l.* to enable government to put the kingdom into a posture of defence, against the invasion it was then threatened with. This vote of credit is considered as the origin of the national debt in this kingdom, and it was to be raised by loan, bearing an annual interest; certain duties were afterwards granted to defray that interest, and sink the principal; these duties have increased or decreased, from time to time, as the debt has risen or fallen, and are distinguished in the public accounts under the title of loan duties.

197. *Territories.*] Besides their own native isles, the English lay claim to very extensive continental territories and islands in Asia and America, they have settlements also on the coasts of Africa, and hold Gibraltar from the kingdom of Spain, and some isles on the French coast; and they have extended their commerce to almost every part of the earth.

In the settlements abroad, the people lose the privileges they inherit at home, they are under the government of the British legislature, and have no representatives therein: this also is the lot of the Isle of Man; and it was but lately, that the people of Ireland obtained the privileges and freedom of citizens, according to the English constitution or Magna Charta: till near the close of the last war, the acts of the British parliament, declared that the kingdom of Ireland ought to be subordinate to, and dependent on, the imperial crown of Great Britain, as being inseparably united thereto; those laws, however, are abolished, and the people of Ireland enjoy the same privileges as the inhabitants of Great Britain.

The following comparative view of European shipping, uncertain as it must necessarily be, may give us some idea of their foreign trade, in comparison with that of other European nations. Suppose the shipping of Europe to be divided into twenty parts, then Great Britain is computed to have 7; United Provinces, 4; Denmark, Sweden, and Russia, 2; German Empire and Austrian Netherlands, 1; France, 3; Spain and Portugal, 2; and Italy, and other parts of Europe, 1.

After this general sketch of the British isles, we may now consider them under their divisions.

Great Britain, the largest, most populous, rich, and fertile island in Europe, is supposed to have had it's name from the word *Brit*, signifying painted or stained; because the ancient inhabitants painted their bodies, to give them a more martial appearance. It includes England, Scotland, Wales, and Berwick upon Tweed.

SECTION XXIII.

England and Wales.

England lies between fifty and fifty-six degrees north latitude, and between two degrees east, and six degrees twenty minutes west longitude. It is bounded on the North by Scotland, on the East by the German Ocean; on the South by the English Channel, and on the West by the Irish Sea.

198. *Divisions.*] England has been differently divided at different periods of time. When the Romans were masters of this country they divided it into,

1. Britannia Prima, including the southern parts of the kingdom.
2. Britannia Secunda, comprehending the western parts, together with Wales.
3. And Maxima Cæsariensis, which reached from the Trent as far northward as the wall of Severus, between Newcastle and Carlisle, and in some parts as far as that of Adrian, between the Forth and the Clyde.

After the Saxons became masters of England, they divided it into seven unequal parts, which they called kingdoms; each leader appropriating to himself those parts which he had either conquered himself, or been the chief instrument in reducing. It received its name from the ANGLES, who, with the *Jutes*, and the *Saxons*, were the founders of the Heptarchy.

SAXON HEPTARCHY.

Kingdoms, comprehending the Counties of,

- | | |
|--------------------|--|
| 1. KENT. | Kent. |
| 2. SOUTH SAXONS. | Suffex, Surry. |
| 3. EAST ANGLES. | Norfolk, Suffolk, Cambridge, Isle of Ely. |
| 4. WEST SAXONS. | Cornwall, Devon, Dorset, Somerset, Wilts, Hants, Berks. |
| 5. NORTHUMBERLAND. | Lancaster, York, Durham, Cumberland, Westmoreland, Northumberland, and Scotland to the Frith of Edinburgh. |
| 6. EAST SAXONS. | Essex, Middlesex, and part of Hertford. |

7. MERCIA.

Gloucester, Hereford, Worcester, Warwick, Leicester, Rutland, Northampton, Lincoln, Huntingdon, Bedford, Buckingham, Oxford, Stafford, Derby, Salop, Nottingham, Chester, and the other parts of Hertford.

About the year 890, Alfred the Great divided England into counties, which, with some little alteration, continue to this day; and is generally called the modern division of England into counties, and the six circuits.

HOME CIRCUIT.

<i>Counties.</i>	<i>Chief Towns.</i>
ESSEX.	Chelmsford, Colchester, Harwich, Malden, Saffron Walden, Bocking, Braintree, and Stratford.
HERTFORD.	Hertford, St. Albans, Royston, Ware, Hitchin, Baldock, Bishops Stortford, Berkhempsstead, Hemsted, and Barnet.
KENT.	Maidstone, Canterbury, Chatham, Rochester, Greenwich, Dover, Deal, Woolwich, Gravesend, Deptford, Feversham, Dartford, Romney, Sandwich, Sheerness, Tunbridge, Margate, and Milton.
SURREY.	Southwark, Kingston, Guildford, Croydon, Epsom, Richmond, Wandsworth, Battersea, Putney, Farnham, Godalmin, Bagshot, Egham, and Dorking.
SUSSEX.	Chichester, Lewes, Horsham, Rye, East Grinstead, Arundel, Bournemouth, Shoreham, Petworth, Midhurst, Hastings, Battle, and Winchelsea.

NORFOLK CIRCUIT.

BUCKS.	Aylesbury, Buckingham, High Wycombe, Great Marlow, Newport Pagnel, and Stoney Stratford.
BEDFORD.	Bedford, Ampthill, Wooburn, Dunstable, Luton, and Biggleswade.
HUNTINGDON.	Huntingdon, St. Ives, Kimbolton, St. Neots, Godmanchester, Ramsey, and Yaxley.
CAMBRIDGE.	Cambridge, Ely, Newmarket, Wisbeach, and Royston.

Counties.

Chief Towns.

SUFFOLK.

Bury, Ipswich, Sudbury, Lowestoffe, Woodbridge, Aldborough, Bungay, Southwold, Brandon, Halesworth, Mildenhall, Framlingham, Lavenham, Hadley, Stratford, Long Stratford, Easterbergholt, Beccles, and part of Newmarket.

NORFOLK.

Norwich, Thetford, Lynn, Yarmouth, Dereham, Fakenham, Wotton, and Worsted.

OXFORD CIRCUIT.

OXON.

Oxford, Banbury, Chipping-Norton, Henley, Burford, Witney, Tame, Woodstock, and Dorchester.

BERKS.

Reading, Abingdon, Windsor, Wallingford, Newbury, Maidenhead, Hungerford, Faringdon, Wantage, and Oakingham.

GLOUCESTER.

Gloucester, Tewkesbury, Cirencester, Blackley, Dursley, Lechlade, Camlden, Newham, Stow, Tetbury, Sudbury, Wotton, Marshfield, and part of Bristol.

WORCESTER.

Worcester, Evesham, Bewdley, Droitwich, Stourbridge, Kidderminster, Bromsgrove, Pershore, and Tidbury.

MONMOUTH.

Monmouth, Abergavenny, Caerleon, Chepstow, Newport, and Pontipool.

HEREFORD.

Hereford, Lempster, Weobly, Kyniton, Ross, Pemb, Ledbury, and Bromyard.

SALOP.

Shrewsbury, Ludlow, Bridgnorth, Bishopcastle, Whitchurch, Wenlock, Wem, Newport, and Oswestry.

STAFFORD.

Stafford, Litchfield, Newcastle-under-Line, Burton, Pembrige, Wolverhampton, Stow, Rugley, Stone, and Utoxeter.

MIDLAND CIRCUIT.

WARWICK.

Warwick, Coventry, Birmingham, Stratford upon Avon, Atherton, Colehill, Tamworth, Nuneaton, and Aulcester.

LEICESTER.

Leicester, Melton-Mowbray, Ashby de la Zouch, Bosworth, and Harborough.

DERBY.

Derby, Chesterfield, Wirksworth, Ashbourne, Balfover, Buxton, and Bakewell.

NOTTINGHAM.

Nottingham, Newark, Redford, Southwell, Mansfield, Workfop, Blithe, and Tuxford.

LINCOLN.

Counties.

LINCOLN.

RUTLAND.

NORTHAMPTON.

Chief Towns.

Lincoln, Boston, Stamford, Grantham, Grimby, Gainsborough, Spalding, Stanton, Hornsea, Crowland, New Sleaford, and Louth.
 Oakham, and Uppingham.
 Northampton, Peterborough, Brackley, Deventry, Oundle, Towcester, Rothwell, Wellinborough, Higham Ferrers, Rockingham, Kettering, and Thrapston.

WESTERN CIRCUIT.

HANTS.

Winchester, Southampton, Portsmouth, Andover, Basingstoke, Christchurch, Petersfield, Lymington, Ringwood, Rumsey, Alresford; and Newport, Yarmouth, and Cowes, in the Isle of Wight.

WILTS.

Salisbury, Devizes, Marlborough, Malmesbury, Wilton, Warminster, Chippingham, Cricklade, Trowbridge, Bradford, and Calne.

DORSET.

Dorchester, Lyme, Sherborne, Shaftesbury, Pool, Blandford, Bridport, Weymouth, Melcombe, Winburn, and Wareham.

SOMERSET.

Bath, Wells, part of Bristol, Taunton, Bridgewater, Wincaunton, Ilchester, Watchet, Minehead, Milborn Port, Glastonbury, Dulverton, Wellington, Dunster, Somerton, Yeovil, Axbridge, Chard, Bruton, Shepton-Mallet, Froome, and Croscombe.

DEVON.

Exeter, Plymouth, Barnstaple, Biddeford, Tiverton, Dartmouth, Tavistock, Oakhampton, Topsham, Honiton, Ashburton, Crediton, Torrington, Moulton, Totnes, Axminster, Plympton, and Ilfracomb.

CORNWALL.

Launceston, Falmouth, Truro, Saltash, Bodmin, St. Ives, Padstow, Tregony, Fowey, Penryn, Kellington, Lelwithiel, Lelkard, Helfton, Redruth, and Penzance.

NORTHERN CIRCUIT.

YORK.

York, Leeds, Wakefield, Halifax, Rippon, Pontefract, Hull, Richmond, Scarborough, Malton, Sheffield, Doncaster, Whitby, Northallerton, Sherbourn, Bradford, Tadcaster, Boroughbridge, Gisborough, Heydon, Pickering, Wetherby, Beverly, Buntingford, Hewden, Knaresborough, Barnsley, Skipton, Ripley, Yarm, and Settle.

DURHAM

Chief Towns.

Durham, Stockton, Sunderland, South Shields, Stanhope, Barnard Castle, Hartlepool, Auckland, and Darlington.

Newcastle-upon-Tyne, Berwick, Tinnmouth, Morpeth, Alnwick, Hexham, North Shields, and Wooller.

Lancaster, Manchester, Preston, Liverpool, Warrington, Clithero, Ormskirk, Wigan, Rochdale, Kirkham, Hornby, Poulton, Bury, Hawkeshead, and Newton.

Appleby, Kendal, Lonsdale, Burton, Ambleside, Kirbysteven, Orton, Brough, and Milthorpe.

Carlisle, Cockermouth, Whitehaven, Penrith, Kefwick, Brampton, Holm, Egremont, Longton, Ravenglass, Wigton, Workington, Kefwick, Ireby, Allonby, Maryport, and Harrington.

Middlesex, being the seat of the supreme courts of judicature, is comprehended in any circuit; nor is Cheshire, as being a county atone.

Chief Towns.

London, Westminster, Uxbridge, Brentford, Barnet, Highgate, Hampstead, Kensington, Staines, Enfield, Edgworth, Hackney, Hampton Court, and Chelsea.

Chester, Namptwich, Macclesfield, Congleton, Northwich, Frodsham, Stockport, Sandwich, Middlewich, Malpas, Knotsford, Wirleach, and Haulton.

CIRCUITS OF WALES.

NORTH EAST CIRCUIT.

Chief Towns.

Flint, St. Asaph, Holywell, and Caerwys.

Denbigh, Wrexham, and Ruthen.

Montgomery, Llanidlos, Llanvylin, Machynleth, and Welchpool.

NORTH WEST CIRCUIT.

Baumaris, Llanrickmead, Holyhead, and Newburgh.

Bangor, Caernarvon, Aberconway, and Pulhilly.

Bala, Dolgelhe, and Harleigh.

SOUTH

SOUTH EAST CIRCUIT.

*Counties.**Chief Towns.*

RADNOR.

Radnor, Prestein, and Knighton.

BRECON.

Brecknock, Bealt, and Hay.

GLAMORGAN.

Llandaff, Cardiff, Cowbridge, Swansea,
Neath, and Penrife.

SOUTH WEST CIRCUIT.

PEMBROKE.

St. David's, Haverfordwest, Pembroke, Fishguard, Milfordhaven, Kilganning, Newport, Tenby, and Whiston.

CARDIGAN.

Cardigan, Aberistwyth, Llanbadarn-vawr, and Tregaron.

CAERMARTHEN.

Caermarthen, Kidwelly, Llandilovawr, Llanelli, Llangharn, and Llamindoverly.

In ENGLAND there are

40 counties, which send to parliament	-	80 knights.
25 cities (Ely none, London four)	-	50 citizens.
167 boroughs, two each	-	334 burgeses.
5 boroughs (Abingdon, Banbury, Bewdley, Higham Ferrers, Monmouth) one each	-	5 burgeses.
2 universities	-	4 representatives
8 cinque ports (Hastings, Dover, Sandwich, Romney, Hythe, and their three dependants, Rye, Winchelsea, and Seaford) two each	-	16 barons.

WALES.

12 counties	-	12 knights.
12 boroughs, (Pembroke two, Merioneth none) one each	-	12 burgeses.

SCOTLAND.

33 shires	-	30 knights.
67 cities and boroughs	-	15 burgeses.

Total - 558

199. *Climate, Soil, and Vegetable Productions.*] The exhalations from the surrounding sea, render the air humid, and the weather changeable, but prevent the extremities of heat and cold experienced on the continent, and clothe the ground with a perpetual verdure.

The soil in different parts is variously diversified, and in some places is deep, in others shallow; but whatever be it's nature and quality, the English husbandman well knows how to convert it to his use. No country

country in the world has carried agriculture to a greater degree of perfection than the English. Besides the great variety of esculent plants, which are produced here for the use of man and brute, hemp and flax, with woad and madder for dying, are cultivated in England. The counties of Kent, Surry, Essex, and Hampshire produce the largest quantities of hops, which now make a very considerable article of trade. Saffron is produced chiefly in Essex, Suffolk, and Cambridge-shire, and esteemed the best in the world.

About the time of the Norman conquest, England abounded with forests. It was the barbarous temper of the Conqueror, to prefer his own diversions to the peace and convenience of the inhabitants, and accordingly many extensive tracts of cultivated land and towns were laid waste, to make room for forests, for the king and his nobles to hunt in.

The number of them was sixty-nine, but they are now reduced to very few, the principal of which are Windsor Forest, New Forest, the Forest of Dean, and the Forest of Sherwood. These large tracts of land formerly abounded with oak, beech, maple, poplar, elm, chestnut, walnut-trees, &c. but from the little care that is taken to plant young trees, as the old ones are cut down, it has been feared that this maritime nation will be destitute of timber proper for ship-building. Planting, has, indeed, become lately more common.

[200. *Animals.*] There are very few animals peculiar to England. The bull-dog, the mastiff, and the cock, however, are here remarkable for their courage and fierceness, which they are observed to lose when carried to other countries; and their horses are the finest in the world both for speed and strength.—It would be well if the improvements in the breed of these animals were founded on more humane and virtuous principles. The English oxen are large and fat; the sheep are of two kinds, one bred in the downs and upland pastures, the other on the lowlands of Essex and Lincolnshire: the flesh of the former breed is preferred, and the fleeces of the latter. Vast improvements in the breed of sheep have been lately made by a Culley, a Bakewell, and their disciples. It is computed that there are no less than eight millions of fleeces annually shorn in England. The other quadrupeds are asses, cows, deer, hogs, hares, rabbits, foxes, squirrels, cats, otters, badgers, hedgehogs, moles, &c.; formerly wolves were very numerous.

The birds are nearly the same as in other parts of Europe, viz. turkeys, peacocks, common poultry, as cocks, pullets, capons, swans, ducks, pigeons, &c. The wild kinds are buntards, wild geese, brent geese, wild ducks, teal, widgeon, plovers, pheasants, partridges, woodcocks, growse, quail, snipes, wood-pigeons, land-rails, hawks of various kinds, kites, buzzards, herons, bitterns, crows, rooks, ravens, magpies, jackdaws, jays, blackbirds, thrushes, nightingales, goldfinches, bullfinches, chaffinches, linnets, larks, yellowhammers, with a vast variety of other small birds. The Cornish chough and the wheatear are supposed to be peculiar to England; the former is found plentifully in Cornwall, and the latter, which is equal to the ortolan in the delicacy of its flesh and flavour, in Sussex.

With regard to fish, few countries in the world have a greater variety. The rivers and ponds abound in salmon, trout, eels, pike, carp, tench,

tench, barbel, perch, gudgeons, smelts, roach, daice, plaice, flounders and craw fish. In some of the lakes of Wales, and in Winandermeer in Westmoreland, is found a very delicate fish called a char; it is of the trout kind, and thought to be peculiar to England. The surrounding seas are full of cod, mackarel, mullets, bafe, guardfish, haddock, whiteings, herrings, pilchards, skate, turbot, soles, hollybuts, of which the most famous fishery is on the coasts of Cornwall and Devonshire, and what are preferred to all others by the voluptuous, john-dories and mullets. Shell-fish are also found in plenty, as lobsters, crabs, prawns, shrimps, oysters, scallops, cockles, muscles, wilks, periwinkles, &c. The coasts are sometimes visited by whales, and by vast numbers of porpoises. In some parts, a few seals are seen upon the rocks, but not frequently.

The principal reptiles of this country are vipers, snakes, and worms and the insects, bees, humble bees, hornets, wasps, ants, gnats, flies in great variety, and many other insects common to the other parts of Europe.

201. *Mineral Productions and Waters.*] Copper, lead, iron, and coal are found in many of the counties of England—wadd or black lead only in Cumberland, where the mine is opened once in about seven years to supply the rest of the world. But the tin mines of Cornwall and Devonshire are the most valuable. It is remarkable, they were known several centuries before the Christian æra, and have constantly been worked ever since that remote period of time. This metal, besides its enriching the proprietors, affords a considerable revenue to the Prince of Wales, who is also Duke of Cornwall, and an important article of trade to the English, in almost every market of the known world. The mundic found in the Cornish tin mines was of no value till the beginning of the present century, when Gilbert Clarke discovered a method of smelting it, and now it brings in 150,000l. annually. No gold mines have hitherto been discovered in England, but small quantities of that metal have been found in the Cornish tin ore. There are several silver mines in Devonshire; but they have not been worked for many years, though they produced seven hundred pounds of fine silver in the year 1296.

Fuller's earth is found in several counties, and is found so necessary for the woollen manufacture, that the exportation of it is prohibited.

Marble, slate, freestone, and a great quantity of other useful substances, are found in the mines and quarries of England.

There are many medicinal waters in England, the principal are the hot-baths of Bath and Bristol in Somersetshire, and those of Buxton in Derbyshire; the mineral waters of Scarborough, Harrowgate, Tunbridge, Dulwich, Epsom, and Aston.

202. *Face of the Country, Mountains, Rivers, and Lakes.*] Whatever advantages other countries may derive from luxuriancy of soil, England thrives by the hand of industry, and exhibits scenes cheerful and warm. Flourishing cities and thriving towns, cheerful villages and comfortable cottages, with surrounding fields and meads, valleys and hills, and plains and downs, yellow with corn, green in perpetual verdure.

rdure, or speckled with thousands of flocks and herds, diversify the
 spect. In the ports are seen vessels fraught with the produce of
 every climate, or bearing hence in exchange the curious manufactures
 of England. Unnumbered are the divisions into which the country is
 intersected by roads, rivers, and canals: in the latter are seen boats
 passing and repassing; on the roads the ponderous waggons labour
 along, and the lighter vehicles of convenience or pleasure, drive rat-
 tling over the grounds both night and day.

The mountains of England seem diminutive, if compared with the
 Atlas, or the Alps. The principal ones are the Peak in
 Derbyshire, the Endle in Lancashire, the Skiddaw, Derwent-Fells,
 the Wrynose and Lanvelling in Cumberland, the Wolds in Yorkshire,
 the Wrekin in Shropshire, and the Cheviot hills on the borders of
 Scotland. But besides these, there are many lofty hills, generally
 called Downs, scattered over the whole country, some of them form-
 ing long ridges or chains, as the Chiltern hills in Bucks, the Malvern
 hills in Worcestershire, the Cotswold hills in Gloucestershire, and the
 South Downs in Sussex.

England is well watered with rivers, which beautify the landscape,
 fertilize the soil, and forward the business of manufactures and com-
 merce; the principal are the Thames, the Medway, the Severn, the
 Trent, the Ouse, the Tyne, the Wear, the Tees, the Avon, the Eden,
 the Derwent, the Ribble, the Mersey, and the Dee.

The lakes of England are but few, though it appears from history,
 and indeed in some places from the face of the country, that meres and
 fens have been very frequent in England, till drained and converted
 into arable land by industry. The chief lakes now remaining are
 Boscawen mere, Wittlesea mere, and Ramsey mere in the isle of Ely, in
 Cambridgeshire. All these meres, in rainy seasons, are overflowed,
 and form a lake of forty or fifty miles in circumference. In West-
 moreland, Winander mere is ten miles long, and two broad, and very
 deep and clear; and in the mountainous parts of Cumberland, there
 are many large and beautiful broad waters or lakes.

203. *Manufactures and Commerce.*] England is superior to every
 other nation of the world, in the variety and excellence of its woollen
 manufacture. This is accounted the staple trade of the kingdom, and
 the house of lords, the chancellor, with the great seal and mace
 lying by him, sits before the throne on the first of the woolpacks,
 which, from an ancient custom, are laid across the room. Its cotton
 and silk works are also very considerable. The weaving of stockings
 was first invented, and is now very extensively carried on in this country.
 Paper is likewise made in almost every part of the kingdom, and there
 are but few towns without their manufactures of hats. In the making
 of porcelain and delft ware many thousands are constantly employed;
 they are unequalled in the execution of these beautiful wares, and these
 are exported not only to the different countries of Europe and Ame-
 rica, but even to the East Indies; and such is the excellence and in-
 dustry of the artificers of metals, that were we willing to adopt the
 mythology of the ancients, we might say that Vulcan had fixed upon
 England, as his especial place of residence. Sheffield and Birmingham
 have

have long been famous for their hard-wares, but these manufactures are not confined to these two particular towns. Artificers in brass and iron are to be found all over the country, and whether we regard the massive or minute works, the ponderous apparatus of ships, mills, &c. or the smaller conveniences of clocks, watches, &c. we may alike admire their abilities and improvements. Besides all these, there are various other manufactures, too numerous to mention here. These are the produce of their mines, as iron, lead, tin, copper, pit-coal, copperas, alum, &c. their cattle (especially their horses, which form the principal article of commerce) corn, butter, cheese, pork, beef, biscuit, &c. and the productions of their fisheries, form the exports of this trading nation.

England did not begin to feel its consequence as a commercial nation, till the reign of Queen Elizabeth. That princess first opened the eyes of her subjects to the advantages which their situation naturally held out to them, and generally the efforts of her successors have been directed to the same end.

During the infancy of foreign commerce, it was judged expedient to grant exclusive charters to particular bodies or corporations of men; hence the East India, South Sea, Hudson's Bay, Turkey, Russia, and Royal African Companies first took their rise; but the trade to Turkey, Russia, and Africa are now laid open; and it is the opinion of some, that if commercial restrictions were entirely abandoned in every quarter of the world, it would tend to the public benefit, the increase of navigation, and to the improvement of the national revenue.

204. *Curiosities, Natural and Artificial.*] Among the natural curiosities of England, the most remarkable are the ebbing and flowing of the sea, the unfathomable caverns, and the mountains of the Peak. Similar curiosities, on a smaller scale, are to be met with in other parts of the country, and also petrifying, as well as hot and cold mineral springs.

The curious works of art are ancient and modern. The antiquities are British, Roman, and Saxon, or Danish. The British antiquities consist chiefly of circles of stones or altars; these are generally rude and unfashioned with any chissel, like the memorials of the patriarchs. Vestiges of these are to be met with in Cornwall, Devonshire, Oxfordshire, Cumberland, and many other parts of England; but the most remarkable monument of this kind, is Stonehenge in Salisbury-plain, in Wiltshire; from the amazing magnitude of the stones, it has even been doubted whether it was a production of human art; some have imagined that the stones are artificial, and were made on the spot, from a persuasion, that the ancients had the art of making stones with sand, and a strong lime or cement, but most authors are agreed that they were brought from a quarry of stones called the Grey Wethers, on Marlborough Downs, fifteen miles from the spot. The upright stones are fixed in a kind of sockets in a chalky soil, with small flints driven in between the stone and the socket; they are from twenty to thirty feet high, and of a prodigious thickness; they have tenons on the top, and are connected together

the top by overthwart stones, or imposts, of enormous size, which are morticed to receive the tenons. The outermost circle is near one hundred and eighty feet in diameter; between this and the next there is a spacious walk, which has a grand effect. This misshapen fabric is supposed to have been the principal place of worship in England, where the arch-druid resided and officiated in person.

The Roman antiquities in England consist chiefly of altars, coins, monumental inscriptions and military ways. The remains of Roman camps are also still perceptible in almost every county; but the most amazing monument of the Roman power in England, was the wall of Severus, running through Northumberland and Cumberland, from Carlisle to Solway Frith, about eighty miles in length. It was built to prevent the Picts and Scots from making incursions into the Roman territories in Britain, but a principal part of it is now converted into a road.

The Saxon antiquities, found in England, consist chiefly of old cathedrals and castles, and particularly camps, of which vestiges are found in various parts of the country. But the most remarkable antiquity of the Saxons, is the rude figure of a horse cut on the side of a green hill, a little to the north of Upper Lambourne in Berkshire. The hill is called White-horse Hill, and the figure takes up near an acre of ground. Saxon coins have been found in various parts of England, and in the British Museum there are preserved many specimens of Saxon learning, though it seems to have been then confined to a few persons. The charters, of which several are still preserved, are written in a neat and legible hand, but the signatures are nothing more than a plain cross, the name of the donor being added by the writer of the charter. The Danish antiquities are but few, and nearly resemble those of the Saxons.

Among the greatest modern works of art in this country, we may reckon the shipping, mines, and canals. The coal works in the north of England are, some of them, especially in the vicinity of Whitehaven, carried to a vast extent beneath the sea; and the canals are carried upon lofty arches over high roads, navigable rivers, and extensive valleys, and for miles underground they are cut through the heart of mountains.

205. *Schools and learned Men.*] The universities of England are those of Oxford and Cambridge. The schools of Westminster, Eton, and Winchester, are also eminent seminaries of learning; and at Woolwich and Portsmouth are two royal academies: besides these, almost every town and even village has its academy or schools, where literature and sciences, or at least their rudiments, are regularly taught.

To tell the progress of science, and the men that excel therein, from the days of Alfred the Great, who, in those early days, was himself the friend and patron of learning, would require a very intimate acquaintance with the writings of the numerous English authors, and make volumes instead of a paragraph. Perhaps no nation since the revival of literature in Europe, has exceeded or even equalled that mixed race, the English, either in the poetic flights of fancy, or the more laborious works of studious research. Some of Alfred's immediate de-

scendants were eminent for their learning. Early in the thirteenth century, in the reign of Henry III. Roger Bacon, a friar at Oxford, wrote treatises on the flux and reflux of the sea, on cosmography, astronomy, optics, metallurgy, and upon the impediments of knowledge. In the days of Henry VIII. the names of Wolsey, Leland, and others, were eminent in literature. At this time encouragement was given to learned foreigners to settle in England. Edward VI. during his short life, encouraged those foreigners, and patronised learning. During the bloody reign of the bigotted Mary, learning, as well as religious liberty, suffered an almost total eclipse. Elizabeth, her sister, was herself a learned princess: in her reign the Earls of Essex and Southampton, and Philip Sydney, were learned themselves, and the patrons of genius. Shakespeare, Spencer, Camden, and other writers, flourished during this period. James I. was an author and a patron of learning; he encouraged foreigners, and conferred honorary titles and pecuniary emoluments on the second (or Francis) Bacon. His son, Charles I. had a taste for the polite arts, especially sculpture, painting, and architecture. He was the patron of Rubens, Vandyke, Inigo Jones, and other eminent artists; and had it not been for the civil wars, he seemed likely to have converted his court and capital into a second Athens. The collections he had made for that purpose, considering his pecuniary difficulties, were stupendous: such was his expence, he possessed four and twenty palaces, most elegantly furnished. His favourite, the Duke of Buckingham, imitated him in that respect, and laid out the amazing sum of four hundred thousand pounds sterling, upon his cabinet of paintings and curiosities. The Earl of Arundel, however, has been considered as the great Mæcenas of that age, and by the immense acquisitions he made of antiquities, especially his famous marble inscriptions, may be considered as a patron or encourager of literature, equal to the greatest of the Medicean princes. The enthusiasts for the fine arts may account Cromwell a Goth: during his time the king's furniture was all put to sale, his pictures, disposed of at very low prices, enriched the principal collections of Europe. Even his palaces were pulled to pieces, and the materials of them sold. Action, however, brings forward dormant or latent powers into excellence; and it has been thought that the force and compass of our tongue were first put to trial in that period of civil commotions, the speeches of the parliament orators being of a strain much superior to what any former period produced. And Cromwell himself was not insensible to literary abilities: Usher, notwithstanding his being a bishop, received a pension from him; Marvel and Milton were in his service; Waller, who was his relation, was caressed by him. He gave one hundred pounds a year to the divinity professor at Oxford; and intended to have erected a college at Durham, for the benefit of the northern counties. The reign of Charles II. was distinguished for the great proficiency to which it carried natural knowledge, especially by the institution of the Royal Society. It has been accounted by some the Augustan age in England. Certain it is that the *Paradise Lost*, by John Milton, was published at that time, that which no other poem has received higher encomiums, as uniting

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all the excellence of all the ancients. The names of Boyle, Locke, Sydenham, Harvey, Temple, Tillotson, Butler, Cowley, Waller, Dryden, Otway, and many others, all distinguished this period by their productions; it would have been well they had universally been as eminent for their piety. In this reign lived Christopher Wren, the eminent architect; and painters were numerous.

The reign of Queen Anne has generally been accounted the Augustan age in England. To the names of Locke, Halley, Ray, and a number of others, with the celebrated Newton, in her time were added those of Addison, Prior, Pope, Swift, Arbuthnot, Congreve, Steele, and many other eminent writers, in the catalogue of authors of that day. Perhaps when the present age shall have passed away, posterity may look back on its improvements, and call it the golden age of sciences and arts. Perhaps superior abilities to those which distinguished the reign of the present king, in almost every department of literature and the arts, were never known in any age or nation of the world.

206. *Principality of Wales.*] This country is politically included in England, with which it joins, and its natural history is pretty much the same. This country was formerly famous for its poets and bards, and was the seat of learning when England scarcely knew the use of letters. It abounds in British and Roman antiquities, which its own learned authors have particularly described. The isle of Anglesea, called Mona by Tacitus, was the principal seminary of the druids, and the chief seat of their rites and religion, except Stone Henge on Salisbury Plain; and monuments similar to that, but on a smaller scale, are numerous here. Among the Roman antiquities is Caerphilly-castle in Glamorganshire, the remains of which still shew it to have been once a beautiful fabrick: one half of the round tower is fallen down, and the other overhangs its basis above nine feet, affording as great curiosity as the celebrated leaning tower at Pisa in Italy.

Among the many lofty mountains in Wales, where the natives retreated and made so many long and hardy struggles against the Roman, Anglo-Saxon, and Norman powers, the most remarkable are Snowdon in Caernarvonshire, and Plinlimmon, which lies partly in Montgomery and partly in Cardiganhire. This country likewise abounds in lakes, the principal of which are Llyn Tigid, or Pimble Mere, and Llyn Savedhan, or Brecknock Mere; the latter of which is so full of fish, that the inhabitants say, two-thirds of it is water, and the rest fish. The road from England to Holyhead runs over a lofty mountain, called Penmanmoer, and affords a grand or awful scene to a stranger; over his head hangs a craggy and enormous rock, threatening every moment to crush him with its fall, and below him a frightful precipice, with the waves of the sea tremendously dashing against the foot of the mountain.

207. *History.* England was inhabited originally by a people called Britons, of the same stock with the ancient Gauls or Celtæ. The first conquest that was made of this part of the island was by the Romans; it was begun in the year 43, under the Emperor Claudius, and was

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completed

completed in 78, under Domitian. Julius Cæsar had invaded the island in the years 54 and 53, before the Christian æra, but he did not effect a conquest, his forces being repulsed by the natives. In 410 the Romans, being no longer able to defend so distant a province, relinquished it to the old inhabitants, who, calling in the Saxons from Germany, to assist them to repel the invasion of the Picts and Scots, were all conquered by them, except those who retired into Wales.

The Saxon tribes, arriving at different times, formed seven different kingdoms, which having some kind of union among themselves, are altogether called the Heptarchy: this continued through three or four centuries, till the several kingdoms which composed it were all reduced by Egbert, one of the princes, into the one extensive kingdom of England about the year 827.

About the year 866 the Danes, under their king Ivar, invited by the Earl Bruern Bocard, made a descent upon England, and conquered Northumberland. Soon after this they conquered East Anglia, and in 873 they were masters of Mercia. About 87 they were in possession of the whole kingdom, king Alfred being obliged to hide himself from their pursuit; but soon after, this prince entirely defeated them, and forced them either to abandon the island, or submit to his government: those who chose the latter settled in East Anglia. They generally revolted at the beginning of every reign; and about 1003 Swain, King of Denmark, conquered all the northern parts of England, and King Ethelred retiring into Normandy, the whole country submitted. Upon his death the Danes proclaimed his son, Canute king; but the English having recalled Ethelred, the island was, as before, divided between them, till 1017, when Canute became master of all England. Under Edward the Confessor, in 1041, the Saxon line was restored without blood; but the Normans, under William the Conqueror, subdued the kingdom in 1066, and the kings of England ever since have been the descendants of this prince. In 1283 Wales was subdued by Edward I. Lewellen, their last king, being defeated and slain; and in 1602, England and Scotland were united under James, the successor of Elizabeth. His reign was pacific; and while it gradually divested the crown of many of its ancient powers and sources of income, without providing others in their stead; contributed greatly to depress the authorities of the king and the nobles, as well as to enlarge the liberties, and exalt the political importance of the commons. His son Charles was destined to contend with his commons, in defence of the ancient powers of the crown, and to perish in the contest. A temporary confusion of republicanism, and the usurpation of an illustrious usurper, seemed but to prove, that civil government could not be happily maintained in England, if monarchy were abolished. The restoration of Charles II. re-established a limited monarchy, but could not extinguish the ambition of unrestrained power in the bosom of the sovereign, nor the accustomed political turbulence of the subjects. The weakness and the vice of Charles II. and James II. instead of suffering the political exasperation of men's minds to mellow into tranquillity, inflamed it to new convulsions, which, in the year 1688, ended in the Revolution. The prudence and the

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ments of William III. with difficulty, settled, once more, the government, without the mischiefs of a lengthened civil war. The victories of Marlborough rendered the reign of Queen Anne, the period in which the ascendancy of the popular spirit in the English constitution was completely confirmed. A blind and excessive devotedness to the whiggish half of the nation occasioned the reigns of George I. and George II. to be disturbed by successive rebellions. In the reign of George III. the ancient party contentions have been extinguished; and the seeds of others of a different character have been sown. Growing political importance in the system of the powers of Europe, has attended this progress of the internal politics of the British government. The victories of Marlborough and the peace of Utrecht, made George I. the umpire among the kings of Europe. George II. ere he expired, saw the ascendancy of Britain re-established. The American war seemed to dismember the British empire; yet left it's real strength and grandeur undiminished. At the present moment, the British is confessedly, in Europe, in Asia, and on the Atlantic Ocean, the first and the greatest of nations.

SECTION XXIV.

Scotland.

Scotland lies between fifty-four and fifty-nine degrees north latitude, and between one and six west longitude. It is bounded on the west, north, and east, by the Irish, Deucaledonian, and German seas, or more properly the Atlantic Ocean; and on the south by England, from which it is separated by no natural boundary, if we except the Solway Frith, near Carlisle, on the west; and the mouth of the Tweed, at Berwick, on the east. In the time of the Romans, however, it extended much farther, being bounded by the wall raised by that people between Newcastle and Carlisle; and, under some of the Saxon and Norman kings of England, it included Northumberland, Westmoreland, and Cumberland.

[208. *Divisions.*] Scotland was anciently divided into two parts, separated by the Frith of Forth. The northern division contains fifteen counties, and the southern, eighteen; and these counties or shires are subdivided as in the following table:

Shires.

EDINBURGH.
HADDINGTON.
BERWICK,
MARLBOROUGH,
SELKIRK,

Chief Towns.

Edinburgh, Musselburgh, Leith and Dalkeith.
Dunbar, Haddington, and North Berwick.
Berwick, Dunse, and Lauder.
Jedburgh, Kelso, and Melrose.
Selkirk.

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PEEBLES.

Dysert, Kirkaldy, Kinghorn, Burnt Island	- - -	1
Inverkeithing, Dumfermline, Queensferry, Culrofs, Stirling	- - -	1
Glasgow, Renfrew, Rutherglen, Dumbarton	- - -	1
Haddington, Dunbar, North Berwick, Lauder, Jedburgh	- - -	1
Selkirk, Peebles, Linlithgow, Lanark	- - -	1
Dumfries, Sanquhar, Annan, Lochmaban, Kirkcudbright	- - -	1
Wigtown, New Galloway, Stranraer, Whitehorn	- - -	1
Aire, Irwin, Rothsay, Campbelltown, Inverary	- - -	1

Some geographers divide Scotland into two parts, distinguished into Highlands and Lowlands, on account of the mountainous country in the north, and the flat tracts on the south. The ancient dress of the Highlanders was peculiar to themselves, and very much resembled the military habit of the ancients; it consisted chiefly of the bonnet, fillet, and plaid. They now dress like the Lowlanders.

209. *Climate, Soil, and Vegetable Productions.*] Scotland, though situated in so high a latitude, that it's longest day in summer, in the more northern parts, is more than eighteen hours, and it's longest winter night of consequence equally long, is yet far more temperate than might at first be imagined. The warm breezes from the surrounding seas not only soften the natural keenness of the air, but also, by keeping it in agitation, render it pure and salubrious, and prevent those epidemic distempers which prevail in other countries; however, in the neighbourhood of some high mountains, generally covered with snow, the air is keen and piercing for nearly nine months in the year.

The soil varies in different parts of the country. It is not in general so fertile as that of England, and in many places seems much better adapted for pasturage than agriculture; the latter, however, has of late been attended to, and so rapidly has the art of cultivation been diffused over the kingdom, that the aspect of the country appears to be materially changed. In many spots, over which the barren heath formerly spread it's sable carpet, the most thriving plantations now rise to view; and in others, where scarce a blade of grass could vegetate, the corn begins to wave it's yellow head.

The vegetable productions of the Lowlands are much the same as those of England, but they do not arrive so early at maturity. The Highlands still contain many extensive sterile tracts; and indeed the soil in many places seems only adapted to the propagation of firs, which thrive amazingly on the most rocky and barren mountains.

Scotland appears to have been once overrun with timber. The deepest morasses contain large logs of wood, and there still remain several extensive forests. Ettrick wood, in the south of Scotland, is supposed to be the remains of the Sylva Caledonia, famous in antiquity for being the resort of wild boars; and there are some woods in the Highlands which reach twenty or thirty miles in length, and four or five in breadth, and produce most excellent oak; but, being a vast distance from water carriage, it is not of much emolument to the proprietors.

210. *Animals.*] The animals of Scotland are pretty much the same with those of England. The Highlands are stocked with red-deer, roe-bucks, hares, rabbits, foxes, wild cats, and badgers; and the hills

in general are covered with black cattle and sheep. Plenty of game, as it is called, is likewise found here, particularly grouse and heath-cock. The horses in Scotland, of the old and native race, are exceedingly small. Formerly, their kings and nobility endeavoured, by importing a larger species of that useful animal, to improve the breed; but they were found, by repeated trials, to degenerate both in size and spirit. The Lowlanders make use of a breed which came originally from England: and these are now generally dispersed throughout the country.

Two remarkable birds, called the capperkaily and the tamarcan, are inhabitants of the Highlands. The capperkaily is about the size of a turkey, and esteemed a great delicacy. The tamarcan is a species of pheasant, and feeds on the tender tops of the fir and pine branches, from which the flesh contracts a turpentine flavour accounted very agreeable both to the palate and stomach.

The rivers and lakes in Scotland abound in salmon, trout, jack, and eel; and the sea supplies them with a variety of salt-water fish. Of late years societies have been erected for the improvement of their fisheries, and they are at present brought to a degree of perfection that falls very little short of the Dutch. Their salmon in particular is of very great advantage to them, as they have it in their power to cure, and send it much earlier to the Levant and southern markets, than the English or Irish can, and consequently find a quicker sale for it.

211. *Minerals.*] Gold is one of the minerals of Scotland. Small solid pieces of that much-desired metal are often found in brooks after a great torrent. At the nuptials of James V. with a daughter of France, covered dishes, filled with coins of Scotch gold, are said to have been presented to the guests by way of dessert; and in the time of that monarch, the mines of Crawford-moor were worked by Germans, under the direction of one Cornelius, their chief; but the civil wars, which happened in the reign of Mary Queen of Scots, obliged these people to abandon their works, which have never since been resumed.

The lead mines in Scotland, of which there are several, produce great quantities of silver. Some mines of antimony have been discovered in Dumfries-shire, near Edinburgh; and no country boasts of greater plenty of iron-ore, both in mines and stones. The east, west, and northern parts of the country, produce exceeding good coals, of which large quantities are exported. In Lanerkshire, or Clydesdale, large pieces of lapis lazuli are sometimes dug up. Marble is found in the Western Isles. Alum mines have lately been discovered in Banffshire. The country abounds in flint, talc, sea shells, fullers' earth, and potters' clay; and in many parts are found variegated pebbles, crystal, and other transparent stones, which admit of a fine polish.

Mineral springs have been discovered at Moffat, Pitkeathly, Peterhead, &c.

212. *Face of the Country, Mountains, Rivers, and Lakes.*] The present improving state of Scotland gives us to see cultivation, canals, and various public works; and the respectable names and employments

men of business or citizens; instead of the desert wastes and the feudal manners of the lordly chieftains, in their lonely castles, with their poor, but devoted, clans about them, which so long deformed this country.

The principal mountains in Scotland are the Grampian Hills, the Pentland Hills, Lammer Muir, and the Cheviot or Teviot Hills. Besides these, Scotland contains many detached mountains, some of which are very high, and of beautiful forms.

The chief rivers are the Forth, the Tay, the Spey, the Clyde, and the Tweed; besides these, there are many of less note, plentifully stocked with salmon, trout, and a variety of other fish.

Scotland abounds in lakes, by the inhabitants called lochs, the principal of which are the Loch Tay, the Loch Lomond, and the Loch Du. The Scots also frequently give the name of loch to an arm of the sea, of which Loch Fyn is one, and is sixty miles long and four broad. On the top of a hill near Lochness, accounted near two miles perpendicular, is a lake of fresh water, about sixty yards in length, and hitherto thought to be unfathomable; this lake never freezes, whereas the Lochanwyn, or green lake, about seventeen miles from it, is perpetually covered with ice.

213. *Manufactures and Commerce.*] The manufactures of Scotland are pretty much of the same kind with those of England, though not generally brought to the same perfection. At Carron, however, in Kirksburgh, they have a most extensive iron manufacture of both cast and wrought metal, and their linen manufacture has increased to a great degree; these, their mines, and inexhaustible fisheries, chiefly furnish the exports of this country.

The prodigious bounties and encouragements that have been granted of late years, for the benefit of the trade and manufactures of Scotland, they have, by indefatigable pains and industry, turned to advantage; their shipping has consequently greatly increased, and excepting the East Indies, they carry on an extensive commerce with every nation to which their southern neighbours trade.

214. *Curiosities.*] The natural curiosities of Scotland are numberless. Upon the top of a mountain called Skorna Lappick, in Ross-shire, twenty miles distant from the sea, are found great numbers of oyster and other sea shells, together with a heap of white stones, and some as clear as crystal. The columnar rocks between the castle and harbour of Dunbar resemble the Giant's Causeway in Ireland. In Fifeshire, there are several caverns of extraordinary dimensions; and at Slains, in Aberdeenshire, are a petrifying cave, &c. &c.

The antiquities in Scotland are principally druidical, Pictish, Roman, Anglo-Saxon, and Danish. Of the former, there are many monuments and temples still discernible in the northern parts, and especially in the islands, but none of them equal to Stone-Henge in Salisbury Plain. There is in Perthshire a barrow, which seems to be a British erection: it resembles the hull of a ship with the keel uppermost; the people call it Ternay, which some imagine to be a contraction of *terra navis*, the ship of earth. It lies near Auchterarder,

Auchterarder, not many miles distance from the great scene of Agricola's operations.

A great variety of Roman antiquities are found in various parts of the country; but the most remarkable now remaining, is the Pretenture, or wall, originally marked out by Agricola, and finished by Antoninus Pius. This wall extends from Carron, upon the Frith of Forth, to Dunglass, upon the Frith of Clyde, more than thirty-seven English miles in length; on the south side of it ran a large well-paved military way, which never leaves the wall above one hundred and forty yards. We learn from the inscriptions on this wall, which are still extant, that the whole of the legion, called *Secunda Augusta*, and the *Vexillationes* of the twentieth and the sixth legions were employed in completing this Pretenture. At the bottom of the Grampian Hills is a striking remain of Roman antiquity, in great preservation, having not less than five rows of ditches and six ramparts on the south side; and of the four gates which lead into the area, three of them are very distinct and plain, viz. the *prætoria*, *decumana*, and *dextra*: the *prætorium* is the place where the general's tent stood, and this is generally thought to have been the camp occupied by Agricola, before he fought the bloody battle, so well recorded by Tacitus, with the Caledonian king, *Galgacus*, who was defeated. A very beautiful antiquity in this country, was a temple on the banks of the Carron, in the form of the Pantheon at Rome, or the Paul's dome in London. It was supposed to be built by Agricola, or some of his successors, to the god *Terminus*, as it stood near the Pretenture, which bounded the Roman empire in Britain to the north; but, to the grief of antiquarians, this monument of the Romans was demolished, for the purpose of mending a mill-pond. Near it are some artificial, conical mounds of earth, which still retain the name of *Dunipace* or *Duni-pacis*. Innumerable are the coins, urns, utensils, and inscriptions, and other remains of that people, that have been found in different parts of Scotland, many of them at a great distance north of the Pretenture. Vestiges of Roman camps are also found in various parts of the country.

Danish camps and fortifications are very distinguishable by their square figures and difficult situations, in several northern counties of Scotland. Some houses of stupendous appearance still remain in Ross-shire, but whether they are Danish, Pictish, or Scottish, is uncertain. Two columnal monuments, of a very extraordinary construction, and generally ascribed to the Picts, are still standing; the one at Abernethy in Perthshire, the other at Brechin, in Angus; each of them is hollow in the inside, and externally furnished with a stair-case. At a place called Aberlemno, near Brechin, are four or five ancient obelisks erected in commemoration of the victories of the Scotch over the Danes, each of which are adorned with bas-reliefs of men on horseback, and many emblematical figures and hieroglyphics, unintelligible at this distance of time. But the most remarkable one of this kind is near the town of Fortrose, in Moray; it consists of one large stone, and rises about twenty-three feet in height from the ground, and is said to sink no less than twelve or fifteen below the surface, so that the whole height

height is at least thirty feet, and it's breadth near five. On what occasion it was erected is unknown.

The parallel roads of Glen Roy, Lochabar, form a curiosity of the artificial kind, which has hardly any thing like it in the world. The glen itself is extremely narrow, and the hills on each side very high, but not remarkably rocky. On the declivity of the hills, on both sides of the glen, are three spacious roads, levelled out of the earth, one above another, and directly opposite on each side. The uppermost road is about fifty yards above the centre one, the lowest more than one hundred beneath it. They are about seven miles long. They are carried along the sides of the glen with the utmost regularity. Other small glens fall into Glen Roy: the parallel roads surround all these smaller ones, but where Glen Roy ends in the open country, there are not the smallest vestiges to be seen. Where deep burns, or gullies of water, cross these roads, they avoid both the descent and ascent in a curious manner, so that on the side where the roads enter the hollows, they rather ascend along the slope, and descend on the opposite side, until they come to the level, without the traveller being sensible either of the ascent or descent, where rocks fall in the way; and there are some small ones fall in the course of these paths, the roads seem abruptly broken, there is no vestige of any causeway, or projected path, for passing them. The road begins on each side of the rock, keeping the regular line as before. These roads are inaccessible at the east-end, but open at the west; but for what purpose they were made, it is not easy to determine. Some have imagined, that they are the works of the druids, but there are none of their buildings or circles of stones. The country people are persuaded that they were designed for the chase, but that these terraces were made after the spots were cleared in lines from the wood, to tempt their game into the open parts, after being roused, in order that they might come within reach of the bowmen concealed in the woods above and below. Ridings for the sportsmen are still common in all the great forests of France, and other countries on the continent, that the hunters may either pursue their game, without being interrupted by trees and bushes, or shoot at it in its passage.

We may reckon the military roads among the foremost curiosities of modern art in Scotland. These, by rendering the Highlands accessible, have greatly contributed to their present improvement, and were owing to the industry of the soldiery. They were begun in 1723, under the directions of General Wade, who forced his way through passes, before supposed to have been inaccessible to a foe. Many of them hang over the capacious lakes of the country, and formerly afforded no other road to the natives than the paths of sheep or goats, where even the Highlander crawled with difficulty, and kept himself from tumbling into the subjacent water, by clinging to the plants and bushes of the rock. Many of these rocks were too hard to yield to the pick-axe, and the miner was obliged to have recourse to gunpowder; and often, when the place was inaccessible in any other way, he was obliged to begin his labours, suspended from above by ropes, on the face of the horrible precipice. The bogs and moors had also

also their difficulties to be overcome, but all were at length constrained to yield to the perseverance of the English troops.

In some parts the soldiers, in imitation of the Romans, left engraved on the rocks the name of the regiment to which each party belonged who were employed in these works; and it has been remarked, they were not less worthy of being immortalized than the vexillations of the Roman legions, civilization being the consequence of the labour of both.

215. *Schools and learned Men.*] Scotland contains four universities which are, according to seniority, St. Andrews, Glasgow, Aberdeen and Edinburgh; besides these, public schools are erected in every parish. In these illustrious seminaries, literature is divested of the ostentation of rich endowments, and the professors are men eminent in their respective departments. This country has produced such an illustrious train of learned men, that to particularize them would be to give a literary history of Europe for upwards of fourteen hundred years. The works of Ossian seem to shew that poetry was no stranger to this climate in very remote ages. Patrick, the celebrated apostle of Ireland, who lived in the fifth century, was a native of this kingdom, which became, for some time, a refuge for the learned, especially the little island of Jona, called St. Columb Kill. The writings of Adamnanus, and other authors, who lived before and at the time of the conquest of England, which are still extant, are specimens of their literature at that period. Charlemagne held a correspondence by letters with the kings of Scotland, and employed Scotchmen in planning, settling, and ruling his favourite universities, and other seminaries of learning in France, Germany, and Italy. The pure Latin style of Buchanan is a sufficient proof that the study of languages was cultivated in his time; but the great destruction of the Scottish monuments of learning and antiquities has rendered their early annals very lame, and too often fabulous.

The discovery of logarithms by Napier of Merchiston, both in point of ingenuity and utility, may justly vie with any other invention of more modern times; and, ever since that æra, mathematical studies have been prosecuted in Scotland, and, indeed, in Europe in general, with facility and success. The names also of Keil, Gregory, Bishop Burnet, Maclaurin, Simpson, Pitcairn, Arbuthnot, Cullen, Hume, Robertson, Stewart, Burns, and many others, hold an eminent place among the literati of Europe; and Scotland produces at this day, in the several branches of literature and science, works that are hardly exceeded in any other country. But the modern writers of these countries are naturally included under the common name of English, from the language they use.

216. *History.*] Scotland was anciently called Caledonia, and the inhabitants Caledones, who were of Celtic original. In the fourth century they were distinguished into Scots and Picts. In 85 Agricola, the Roman general, subdued this part of the island, but did not retain more of the conquest than that part which is south of the Forth and Clyde. In 121, Adrian relinquished more, building a wall from the Solway Frith to the river Tyne. In 144, the Romans again extended

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ended their boundaries as far as the wall of Agricola; but Severus, though he conquered the whole country in 208, thought proper to adhere to the boundary of Adrian.

Upon the Romans quitting this island, in 410, the Scots regained the possession of all that which is now called Scotland, and made excursions very far southward, though without retaining their conquests. About 839, the Picts are said to have been entirely reduced by Kenneth I. the first sole king of all Scotland. In 1296, Edward I. king of England, conquered all this country, and the English were not finally expelled till the year 1314. In 1602, James VI. king of Scotland, succeeded to the crown of England, on the death of queen Elizabeth; and in 1707 the union between the two crowns was completed.

With the Union, a great part of the Scottish nation were dissatisfied. Attachment to the family of the exiled kings, and the persecution which that attachment drew upon them from the new government of the House of Hanover, drove the Scots, in the year 1715 into rebellious insurrection. Their rebellion was suppressed: and the most eminent among the rebels were condignly punished. The severities which were now inflicted, tended to make the spirit of discontent and rebellion still to rankle and fester in the hearts of the sufferers, and their friends. For thirty years longer, the Jacobite party continued to be strong in Scotland, and ready to break out into rebellion upon any new occasion. France, to divert the British arms from the war on the continent, sent the grandson of James VII. into Scotland, in the year 1745. A new rebellion was excited. It was, in 1746, defeated. Confiscation, decapitation, military rapine and havock again broke the rage of the victors, upon the vanquished rebels.—The civilization of the Highlands of Scotland was at last considered, by government, as the most effectual means that could be adopted, to put, for ever, an end to Scottish rebellion. A more beneficent system for the administration of the government of Scotland was introduced. The several persecutions of the Tories and Jacobites, which had long held them obdurate in their political prejudices, and driven them into successive rebellions, were now wisely relaxed. From the Union till this era, the progress of industry and opulence among the Scots, had not been in full proportion to what would have necessarily happened, if the Union had not taken place. Since the year 1748, the Highlands of Scotland have been gradually civilized, cultivated, and filled, in various places, with a more numerous population. The great towns have considerably enlarged: many new villages have been built; new manufactures have been established; the maritime trade of the nation has been prodigiously extended: and the southern counties have been improved to a beauty and richness of agricultural fertilization, which the best agriculture of England may see with envy.

The isles of Scotland chiefly form three clusters: on the west lie the Hebrides, or Western Isles; on the north the Orkneys, or Orcades; and still farther north the Islands of Shetland, where the hardy inhabitants derive much of their sustenance from climbing the stupendous rocks after birds and their nests, which multiply in astonishing abundance. In summer they can see to read at midnight: and their seas,

at that season, are covered with the fishing-vessels of different nations, who resort thither to catch herrings; but in their tedious winter they are deprived of every communication with other countries, and not a single ship is seen on their coasts.

SECTION XXV.

Ireland.

Ireland is situated between six and ten degrees of west longitude, and between fifty-one and fifty-five degrees of north latitude. It is bounded on the east by George's Channel, or the Irish Sea, which divides it from Great Britain; its other shores are washed by the Atlantic. The name of this island is probably derived from a Phœnician or Gaelic term, signifying the remotest habitation westward.

217. *Divisions.*] Ireland is divided into four provinces: on the north lies Ulster, on the east Leinster, on the south Munster, and the west Connaught.

LEINSTER Province contains twelve Counties.

<i>Counties.</i>	<i>Chief Towns.</i>
LOUTH.	Drogheda, Dundalk, Carlingford, Ardee, Dunleer.
EAST MEATH.	Trim, Kells, Athboy, Navan, Dunleek, Ratoath, Ardraccan.
WEST MEATH.	Mullingar, Athlone, Kelbeggan, Kinnegad, Fore.
LONGFORD.	Longford, Granard, Laneshorough, Johnstown.
DUBLIN.	Dublin, Swords, Newcastle, Balruddery, Finglas, Glasnevin.
KILDARE.	Naas, Athy, Kildare, Castledermot, Kilcullen, Rathangan, Kilcock, Monastereven.
KING'S CO.	Philipstown, Bir, Tullamore, Banagher, Ballyboy, Geashill.
QUEEN'S CO.	Maryborough, Mountmellick, Portarlinton, Bal-lynekill, Mountrath, Stradbally, Ballyroan, Ab-yleix, Borris in Ossory.
WICKLOW.	Wicklow, Arklow, Cary's Fort, Rathdrum, Bray, Blessington, Dunlavan, Baltinglass, Carnew.
CARLOW.	Carlow, Old Leighlin, Leighlin-bridge, Tullogh, Hacketstown, Bagnalstown, Clonegail.
WEXFORD.	Wexford, Enniscorthy, New Ross, Fethard, Go-rey, Bannow, Clonmines, Taghmon, Duncannon, Ferns.
KILKENNY.	Kilkenny, St. Canice, Thomastown, Callan, Gowran.

ran, Knocktopher, Innistloge, Castlecomber,
Ballyragget.

ULSTER contains nine Counties.

DONEGAL.

Donegal, Ballyshannon, Johnstown, Killybegs,
Lifford, Letterkenny, Raphoe, Rathmullen,
Rathmelton, Buncranagh.

LONDONDERRY.

Londonderry, Colerain, Newtownlimavady, Ma-
gherafelt, Ballinderry.

ANTRIM.

Carrickfergus, Belfast, Lisburn, Antrim, Ran-
dallstown, Ballymenagh, Ballycastle, Connor,
Larne, Ballymony.

TYRONE.

Omagh, Dungannon, Augher, Strabane, Stew-
ardstown, Clogher.

FERMANAGH.

Enniskillen, Newtownbutler, Lisneskea, Clabby,
Maguirebridge.

ARMAGH.

Armagh, Charlemont, Lurgan, Portadown, Tan-
deragee, Loughgall, Legacurry, or Rich-hill.

DOWN.

Downpatrick, Newry, Dromore, Kellileagh, Ban-
gor, Newtown, Hillsborough, Magherelin, Moi-
ra, Donaghadee, Rathfryland, Warrenstown.

MONAGHAN.

Monaghan, Glaslough, Clownish, Carrickmacross,
Castleblaney.

CAVAN.

Cavan, Kilmore, Belturbet, Cootehill, Killyshandra.

MUNSTER contains six Counties.

CORK.

Cork, Bandon, Cloyne, Mallow, Ross, Baltimore,
Youghall, Kinsale, Cloughnakilty, Charleville,
Castlemartyr, Middleton, Rathcormick, Done-
rail, Bantry, Skibbereen, Dunmanway, Ma-
cromp, Buttevant, Kanturk, Castlelyons, Carry-
glafs, Killworth, Mitchestown, Fermoy, Innis-
kean, Innishannon, Timoleague, Newmarket,
Ballyclough, Annagh, Douglafs.

WATERFORD.

Waterford, Dungarvan, Lismore, Tallagh, Pas-
sage, Caperquin.

TIPPERARY.

Clonmel, Cashel, Tipperary, Carrick, Thurles,
Nenagh, Feathard, Barraskean, Roscrea, Clog-
heen, Silvermines, Cullen, Cahir.

LIMERICK.

Limerick, Killmallock, Askeaton, Rathkeal, New-
castle, Hospital, Bruff, Kilfinan.

KERRY.

Trakee, Dingle Icouch, Ardfert, Aghadoe, Kil-
larney, Castle Island, Lixnaw, Listowell.

CLARE.

Ennis, Killaloe, Bryanbridge, Kilfenora, Six-
mile-bridge, Newmarket, Corofin.

CONNAUGHT

CONNAUGHT includes five Counties.

GALWAY.	Galway, Loughrea, Athenry, Tuam, Clontarf, Eyrecourt, Gort.
ROSCOMMON.	Roscommon, Abbyboyle, Tullsk, Elphin, Ballinallo, Castlereagh, Athlone.
MAYO.	Castlebar, Ballinrobe, Foxford, Killala, Newport, Ninola, Ballina.
SLIGO.	Sligo, Coloony, Achonry.
LEITRIM.	Leitrim, Jamestown, Carrick.

In Ireland the king governs by deputy, and his lord lieutenant, or viceroy, is competent to the execution of laws; or, in his absence, on his decease, the lords justices are the supreme governors. The laws are enacted by authority of the two Irish houses of parliament, and sent over to Great Britain, where the king resides, to receive his assent.

In Ireland there are	Member
32 counties, which send to parliament	- - - - 6
99 boroughs	- - - - 19
8 cities, 9 towns, 1 manor, and 1 university, each 2	- - - - 3
Total	- - - - 30

218. *Climate, Soil, and Vegetable Productions.*] Ireland is more temperate than even England, as to heat and cold, but its air is more humid, from the adjoining Atlantic, and it is still more subject to clouds and rain.

The soil is various; in some places it is so rich, as to want no manure, and in a few places so barren, that husbandry can hardly render it fertile.

In this country agriculture has been much neglected; but, before the late distractions, had begun to be improved. Where the lands are not naturally fertile, the inhabitants take care to manure them with dung, ashes, mud, or lime, in order to enrich the soil. By these, and various other improvements lately made in agriculture, the lands in Ireland produce much larger quantities of corn, flax, artificial grasses, culinary vegetables, &c. than formerly. This happy change is in a great measure owing to the Dublin Society, established for the improvement of various arts and manufactures, among which husbandry engages a very considerable share of their attention. The premiums offered by this society have introduced the cultivation of clover, trefoil, the saint-foin, lucern, rye-grass, and various other vegetables for the food of cattle. Many unprofitable bogs have also been drained and rendered excellent land.

There are at present few forests in Ireland, and those confined chiefly to the provinces of Leinster and Ulster. They produce excellent timber, particularly oak. Formerly the whole country was covered with woods, but, since the reformation, they have been cut down in so extraordinary a manner, that the inhabitants are now obliged to import large quantities of timber for their buildings.

219. *Mineral Productions.*] It is principally in this century that

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223. *Curio*
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market for vending the whole produce was comprehended in a few rooms, in two or three inns, in and near Church-street, and Pill-lane, Dublin, until the year 1728, when the linen-hall in that city was built and opened by the trustees of the linen manufacture; since which they have, from time to time, made many and large additions, whereby it now contains about four hundred rooms, all fully occupied, many of them perhaps two or three times successively filled, each market, there being three annually. The yarn-hall adjoining is also an extensive building, wherein a great deal of business is transacted, both for home manufacture and exportation. Yet all this doth not describe one half of the increase, for from Belfast only there has been, in many years past, several hundred thousand pounds worth yearly exported to London, and sundry other ports in England and foreign parts; and lately a spacious linen-hall has been built in that town, at the expense of the inhabitants, containing near three hundred rooms; so that the exports from thence of linens at present fall little short of those from Dublin; but if we add the exports from Newry, and linen-yarn from Londonderry, and other ports in Ulster, they exceed those of the same sort from Dublin by near half a million sterling yearly. The cotton manufacture, though but a very few years since it took root in this kingdom, has made a more rapid progress in the short time than even the linen-trade, there being divers water-mills for roving and spinning erected, many hundred looms at work, and several stamp-yards in sundry parts of the kingdom, all for compleating the various branches of this useful manufacture. The whole amount of exports at this time of linen-cloth is about two million sterling annually, and that of linen-yarn five hundred thousand pounds.

The other exports from Ireland are, live cattle, beef, pork, bacon, butter, cheese, tallow, raw hides, tanned leather, calf skins, dried sheep, candles, ox and cow horns, herrings, salmon, oats and oatmeal, wheat, flour, lead, copper ore, &c. broad-cloths, freezes, fine stuffs, ratens, camblets, fine tabbinets and poplins (which last exceed those of any other country) wool, bay yarn, with many other things too tedious to enumerate in a work of this kind.

223. *Curiosities.*] Were the beautiful lakes, water-falls, and glens, Ireland, less numerous, they might readily be admitted as rarities, or natural curiosities.

Of the subterraneous caverns in this country, those near Kilkenny are the most remarkable, being hardly less curious than the celebrated caves of Antiparos, in the Archipelago. The appearance of the caverns within impresses upon the spectators the idea of grand gothic structures, richly diversified with innumerable crystalline and white petrifications, pendant from the roof like icicles, or encrusted in the sides and floor in the style of rustic ornament. People have gone above a quarter of a mile in these caverns. The passages into some of them are so very low, that the curious have been obliged to creep through them; and these they have proceeded until they have heard the noise of a subterraneous river, but none have ventured farther.

The Giant's Causeway, in the county of Antrim, has been accounted the greatest natural curiosity in Ireland, being the most remarkable

markable one of it's kind in the known world. The name of it may naturally convey to us the idea of some stupendous work of art; and as such it seems to have been considered in the days of ignorance when the name was first applied; modern philosophy, however, looks on it with a different eye. To conceive a proper idea of this unparalleled curiosity, we may imagine an approach to it from the sea; it's first appearance is that of a bold rocky shore, with extensive range of shelving, on which people may walk. The rocks, instead of being disposed in laminæ, or strata, form basaltæ, or angular columns. The columns generally are pentagonal, or have five sides, and are so closely attached to each other, that, though perfectly distinct from top to bottom, scarcely any thing can be introduced between them. This extraordinary disposition of the rocks continues to the water's edge, and under the sea; it also obtains in a small degree on the opposite shore of Scotland.

The crystallization of salts in the works of creation, as well as under a chemical process, assumes certain regular and determinate forms, as cubes, various sorts of pyramids, parallelopipeds, &c.; and we might imagine, that this celebrated promontory, made up of these innumerable massive columns of stone, owing their origin to some similar operation in nature, were not at all more wonderful than the crystallization of salts, except as their stupendous size impresses such little beings as we are with amazement; but the causeway is still more curious in the little than the great. The columns themselves are not each of one solid stone in an upright position, but composed of several short lengths exactly joined, not with flat surfaces, as in works of art, but, what is most extraordinary, they are articulated into each other, as a ball in a socket, the one end of the joint having a cavity into which the convex end of the opposite is exactly fitted; this is not visible but by disjoining the two stones. The depth of the concavity or convexity is generally from three to four inches; and what is still farther remarkable of the joint, the convexity and the corresponding concavity are not conformed to the external angular figure of the column, but exactly round, and as large as the size of the column will admit. It is still further remarkable, that the articulations of these joints are frequently inverted. In some the concavity is upwards, in others the reverse.

The latest and most philosophic conclusions on the formation of this natural curiosity appear to be, that the whole body of the rock was once in a state of fluidity, being no other than the lava of a burning mountain; that the prodigious mass of melted stone cracked in cooling into the forms we now see it in (and in some of the joints the stone is not cracked quite through, but solid in the middle); that it may since have been deranged and broken by earthquakes; that it has swallowed up the volcano itself; and that the waters of the neighbouring ocean now roll over the place where it once stood.

The Irish nation appears to be of greater antiquity than any other in Europe. It has, in common with other countries, it's druidical remains; as circles of stones, cairns, tumuli, in which urns are commonly found, cromliachs, &c. and it appears till this day, there

SECT. XX

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It is generally children of the world; and ancient people that the P their way island, at a that the I country.

of Scotia, from the S truth, the remains of most incon brazen sword lately found fought. The Irish are were origin the Belgæ, from Gaul, sure; and ancient nation refugees.

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mains with their language a remarkable vestige of their manners or sacrifices ; they kindle fires on high places at midsummer eve, though Christianity has long since supplanted the worship of the sun.

It is generally known that, from the remote ages of antiquity, the children of men have migrated from the east to these parts of the world ; and it has been thought by some, that colonies of that very ancient people, the Scythians, and with more appearance of probability, that the Phœnicians, or their descendants, the Carthaginians, found their way to Spain along the Mediterranean, and from thence to this island, at a very early period, under the name of Milesians ; moreover, that the Phœnicians, who were a maritime people, traded to this country. The tumuli, or monumental heaps in Ireland, and the name of Scotia, first applied to this country, have been considered as derived from the Scythians ; and with a far more substantial appearance of truth, the very curious antiquities of Ireland have been considered as remains of the Phœnicians, and the arts they introduced. Of these the most incontestible are the various metal instruments, especially the brazen swords, which are of the same metal and construction of those lately found upon the plains of Cannæ, with which the Carthaginians fought. There has been a striking agreement also discovered between the Irish and Punic languages. Others have concluded, that the Irish were originally colonies of Britons, driven out from their country by the Belgæ, who, 350 years before the Christian era, crossed the channel from Gaul, and seized the whole southern coast from Kent to Devonshire ; and that hence, not from the Scythians, they received their ancient name of Scuites, or Scots, which signifies the wanderers, or refugees.

The most noted antiquities of Ireland are the Pharos, or round columnal towers : the learned however are not agreed about the particular use to which these edifices were applied ; some say they were places of penance, others say that they were belfries, the very name of them, in Irish *cloghabd*, importing a steeple with a bell. But the prevailing opinion seems to have been, that they were anchorite pillars, such as Simon Stylites and his followers, with uncommon austerity and perseverance, to the amazement of the gazing multitude, used to stand upon motionless like statues, and as it were removed from the earth, and its low cares, to meditate only upon heavenly things. Again it has been remarked, that over great part of the East, they have tall round steeples, called *minarets* with balconies at top, whence a person calls the people to public worship at stated hours ; and it has been supposed, as the Irish had their arts from Phœnicia, that from thence also came the model of these towers, which served, as the minarets of the East do at present, till bells came into use.

At the hill of Tarah, about eighteen miles north-west from Dublin, there still remain vestiges of the circular forts, in which the several chiefs used to pitch their tents, or erect other temporary sheds, on occasion of the triennial conventions held there, when the monarch, provincial kings, and subordinate toparchs, solemnly assembled to adjust rights, enact laws, and promulge them. As Ireland never felt the sway of the Roman empire, so it scarcely exhibits any Roman an-

tiquities ; yet it appears that that ambitious people were not unacquainted with this island ; for Tacitus says, it's ports and harbours were better known by trade and commerce than those of Britain. When the ambassador of Henry V. claimed precedence at the council of Constance, he founded his title upon his master being Lord of Ireland, a state of indisputed antiquity. If the Danes, at the time of their expulsion, left any vestige of their former power in this island, either from the hatred of the Irish to their memory, or some other cause, they seem generally at this day to be demolished or extinct.

224. *Learning and Schools.*] Greece and Egypt, in very remote antiquity, were seminaries of learning to the rest of the world ; and Ireland in later days, seems to have answered the same description to the other nations of Europe. When the ravages of the Goths and Vandals had desolated the improvements of Europe, and reached also to a considerable extent on the African continent ; and when monkish superstition, still more baneful to science, had completed what the Goths begun, learning appears to have flourished in Ireland. Spencer says, it is certain that Ireland had the use of letters very anciently, and long before England ; he thought they were derived from the Phœnicians. Bede speaks of Ireland as the great mart of literature, to which they resorted from all parts of Europe. He relates that Oswald, the Saxon king, applied to Ireland for learned men, to instruct his people in the principles of Christianity. Camden says, it abounded with men of splendid genius, in the ages when literature was rejected every where else ; according to him, the abbies Luxeu in Burgundy, Roby in Italy, Witzburg in Frankland, St. Gall in Swisserland, Malmesbury and Lindisfern in England, and Jona or Hy in Scotland, were founded by Irish monks. The younger Scaliger says, at the time of Charlemagne, and two hundred years before, almost all the learned were of Ireland. The first professors in the university of Paris were from this island ; and it is said that Alfred brought professors to his newly-founded college of Oxford from this country. At this day, the patron saints, as they are called, of several nations on the continent, are acknowledged to be Irish ; hence we may see how Ireland obtained the name of the Island of Saints. Armagh, in old times, is said to have had several thousands of students at once, and here were other seats of learning equally famous. In fact, when we read of the ancient literature of Scotland, we must understand it as spoken of Ireland, under it's ancient name of Scotia, or the improvements of Scotland immediately derived from hence. Ireland retained the name of Scotia, till so late as the fifteenth century, with the addition of Major or Vetus, to distinguish it from Caledonia or Albania, that is, the present Scotland, which in the eleventh century began to be called Scotia Minor, or Nova. The ancient Scotch writers of the greatest repute are so far from denying their Irish extraction, that they seem to glory in it ; and king James I. in one of his speeches, boasts of the Scottish dynasty being derived from that of Ireland.

The college of Dublin is the only university in Ireland. Several free schools have been established in this kingdom ; beside these, there are

are numerous academies or schools, where literature and sciences are regularly taught.

It is surprisingly strange, says Rapin, who makes the names Scots and Irish synonymous, that the conversion of the English should be ascribed to Austin (a missionary of Rome) rather than to Aidin, to Finian, to Colman, to Cedd, to Diumna, to Furfeus, and other Irish or Scots monks. Among the literati also, and reputed saints of Ireland, we may reckon the names of Brigid, Brendan, Columb-cill, Columban, Gall, Fiacre, Virgilius, Kilian, Rumnoldus, Dymrna, Fuscus, Malachy, and innumerable others. Virgilius was bishop of Salzburg, a native of this country, and surnamed Solivagus; he lived in the eighth century, and ventured to incur the displeasure of the Pope, by opposing philosophy to the superstition of the times. If Virgil, says the Roman Pontiff, maintains that there is another world, another sun, another moon, and that this earth is round, so that there is another sky opposite to our sky, and other men with their feet opposite to our feet, *anathema esto*.

The more modern authors in Ireland, from their language, are with the other writers of these islands, naturally included under the common title of English literati. Some of them have been so eminent for wit, genius, learning, or science, that to mention their names only, may inform many what works this country has latterly produced. Among these we may reckon the names of Usher, Boyle, Berkeley, Swift, Leland, Parnell, Boyce, the Lords Molesworth, Orrory, and Clare, Hans Sloane, Cunningham, Goldsmith, Sterne, Congreve, Marquhar, Jephson, Burke, and Sheridan.

225. *History.*] The first inhabitants of Ireland were of Celtic origin. Their history is very ancient, but much obscured by fiction or romance. In 795, the Danes seized a part of it, and were never completely subdued, till the English took possession of the whole. Before this period, the island had been divided into a number of petty sovereignties, and the country was harassed by the contentions of the chiefs, as well as by the frequent and bloody wars with the Danes. Such was the situation of this kingdom, when Henry II. of England first conceived the design of reducing it under his own dominion. It has been supposed he was provoked at the Irish princes, for giving assistance to the French. It was affirmed by his flatterers, that the Irish had originally possessed themselves of their country, by permission of Gurguntius, a British king; and that, as descendants of the Britons, they were the natural and rightful subjects of the English monarch. It was also suggested, that the renowned king Arthur, Egfred the Northumbrian prince, and Edgar, one of the Saxon kings of England, had all led their armies into Ireland, and there made valuable acquisitions, which their successor was in honour bound to recover and maintain. The king took a more effectual method of ensuring his reputation. He applied to the Pope, represented that the inhabitants of Ireland were sunk into the most wretched state of corruption, both with regard to morals and religion; that Henry, zealous for the honour and enlargement of God's kingdom, had conceived the pious design of erecting it in this unhappy country; was ready to devote

himself and all his powers to this meritorious service; implored the benediction of the pontiff; and requested his permission and authority to enter Ireland, to reduce the disobedient and corrupt, to eradicate all sin and wickedness; to instruct the ignorant, and spread the blessed influence of the Gospel in all its purity and perfection; promising at the same time to pay a yearly tribute to St. Peter, from the land thus to be reduced to his obedience, and to the Holy See. Adrian, the reigning pope, rejoiced at this application, which tended so much to the advancement of his own power. A bull was therefore immediately formed conformably to the most sanguine wishes of Henry, which was sent to England without delay, together with a ring, the token of his investiture as rightful sovereign of Ireland. But whatever inclination the king of England, or the Pope, might have at this time (A. D. 1159) for the subjection of Ireland, the situation of the English affairs obliged Henry to defer it for some time.

In the mean time, intestine broils harassed this country; and among other revolutions, Dermot, king of Leinster, was deposed as a man utterly unworthy of his station, and another of his family was raised to the throne. The deposed prince sought the protection of the English; at first he was joined by private adventurers, yet with the countenance of Henry II. these first made settlements in this country in 1169, and in 1172, the king arriving himself, and in his treaty with Roderick, who was considered as monarch of Ireland, the whole island was submitted to him. The successes of Robert Bruce, king of Scotland, raised great commotions among the Irish, who were tempted to transfer their allegiance from the kings of England to those of Scotland: in 1315, he expelled the English out of many of the places they held in this island, and his brother Edward was proclaimed king of Ireland. But the Scots were expelled in 1318, and the Irish submitted to Edward II. They appear to have remained quiet during the subsequent part of this reign; but in that of Edward the III. they once more revolted. This monarch, however, having subdued the kingdom, treated the nation with such lenity, as entirely gained their affections. Till the reign of Henry VIII. the kings of England only assumed the appellation of Lords of Ireland; he took the title of king of Ireland, which his successors have continued ever since.

The native Irish were disposed incessantly to renew the contest with their English conquerors. In the reign of Queen Elizabeth, long wars with the Irish, and frequent insurrections of their humbled chiefs, occasioned much solicitude and expence to the English government. But every insurrection was subdued; and in the reign of James I. a system of law and government for Ireland was for the first time established, that had for its object, the welfare as well of the native Irish as of the colonists from England, who acquired a large proportion of the Irish lands. Until the reign of Charles I. had considerably advanced, no extraordinary emergencies arose in the Irish government. The rising turbulence of the native Irish was vigorously quelled, and new order was happily established by the exertions of Wentworth, earl of Strafford, during the period of his command in this

isle. The attempt to obtain from the native Irish sufficient suc-

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cours to maintain Charles I. proved unsuccessful. Amidst the tumults of that civil war between Charles and his parliaments, which ravaged Scotland and England, the native and catholic Irish rose, however, in furious insurrection, and, by a terrible conspiracy, treacherously massacred a great number of the colonists and protestants. The grants of the Long Parliament, the subscriptions of the city of London, and the arms of the Cromwells, once more reduced the Irish under subjection, and filled the isle with a new race of colonists. From the Restoration to the Revolution, Ireland remained considerably tranquil. The attachment of the Irish Papists to a Popish prince enabled the abdicated James to make in Ireland a last struggle for the recovery of his crowns. The victories of William and his generals soon broke the strength of the Jacobite Irish. After these events, the Irish government was naturally settled in a manner little favourable to that part of the nation who had been so long turbulent and rebellious. Even the protestants and whigs of Ireland, in danger from the Jacobites and papists among whom they dwelt, were necessarily in a condition of very abject dependence upon England. Ireland was in a state of depression; but that depression was almost unavoidable. From the time of the revolution, however, it continued to become gradually more populous, industrious, and opulent. The opposition of interests and characters between the papists and the protestants was, however, long adverse to it's prosperity. In 1782, it was emancipated from legislative dependence on England. It has been lately ravaged by renewed rebellion. It is supposed that a legislative union with England can alone make Ireland politically happy.

226. *Man and Jersey Isles.*] The Isle of Man is centrally situated between England, Scotland, and Ireland. It's length from north to south is about thirty miles; it's breadth from eight to fifteen; and the latitude of the middle of the island 54 deg. 16 min. north.

The air is mild, and the articles of it's produce the same with the lands that surround it. In this island the horses are very small. There are no mines in this island, though it is said to abound with lead, iron, and copper; and also with quarries, slates, and stone. It contains several harbours, particularly that of Douglas, the capital town of trade, which has a mole extending into the sea; and Ramsey bay, where ships may ride safely from all winds, except those at north-west. It's curiosities consist chiefly of Runic sepulchral inscriptions, which are sometimes dug up, together with ancient monuments of brass, daggers, and other weapons, partly of brass and partly of pure gold.

History frequently mentions the kings of Man, who for some ages were masters of the surrounding seas; till, in 1263, Alexander II. king of Scotland, subdued the island, from which time it continued tributary to that crown, till it was reduced by Edward I. of England. Edward III. bestowed it on his favourite, the Earl of Salisbury. Henry IV. gave it first to the Northumberland family, and then to John Stanley, whose posterity, the Earls of Derby, enjoyed it till, by failure of heirs male, it devolved upon the Duke of Athol, who married the sister of the last Lord Derby.

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For many years this place swarmed with smugglers, outlaws, debtors, &c. who lived in it, secure from the reach of the laws. The government having taken this into consideration, in the beginning of the year 1764, a treaty was set on foot for the purchase of the island by the British crown, which, in 1765, was concluded, in consideration of the sum of 70,000*l.* being paid to the proprietor. In consequence of this purchase, the king has now the same rights, powers, and prerogatives as the former owners enjoyed. But though the form of it's government is altered, the Duke still retains his territorial property in the island. Their fisheries supply the principal part of their exports.

The islands of Jersey, Guernsey, Alderney, and Sark, are all situated on the south side of the English Channel, in Mount St. Michael's Bay, between Cape La Hogue and Cape Frebelle, on the coast of France.

Jersey and Guernsey are each about twelve miles in length, and have governors, who are appointed by the king of England. Alderney and Sark are dependent on the two former. They all originally belonged to the Normans; and Jersey afforded protection to Charles II. during his exile.

The islands are all exceedingly healthy, particularly Jersey. The valleys are fruitful, and contain plenty of sheep and cattle; but husbandry is much neglected by the inhabitants, who employ themselves chiefly in cultivating their orchards, and making cider, with which both these islands abound; they are likewise very intent upon the improvement of commerce. At Jersey, there is a manufacture of stockings, which, together with caps, form the staple commodity of that place; but a considerable trade in fish is carried on between these islands and Newfoundland, and they dispose of their cargoes in the Mediterranean. The inhabitants speak a very bad French, with an intermixture of English words.

SECTION XXVI.

Denmark, Norway, &c.

Lapland forms the northern coast of Europe, and the neighbouring powers of Denmark, Sweden, and Russia claim different divisions of it; but from such a land of ice and of snows, mountains and morasses, we can hardly expect them to derive much profit. The skins of squirrels, foxes, &c. compose the trifling tribute the Laplanders pay, and the medium of what little traffic they carry on. (See art. 149.)

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Langland,

alland,

Of the Kingdoms of Denmark, Norway, &c.

These two kingdoms, which were united in the year 1376, by the marriage of Aquin, king of Norway, with Margaret, daughter and heiress of Waldemar, king of Denmark, were formerly part of Scandinavia, a large country, comprehending Denmark, Norway, and Sweden.

Denmark, including Norway, is one of the most northern kingdoms of Europe, and includes the following dominions: Denmark Proper, territories in Germany, Norway, part of Lapland, and several islands in the Baltic and in the German Ocean, or North Sea. The most southern part of Denmark is nearly in the same latitude with Dublin; its most northern territories lie quite within the Arctic Circle.

Denmark Proper is bounded on the north by the Cattegat, or Schaggerac Sea, on the south by Germany, on the west by the German Ocean, and on the east by the Sound.

227. *Constitution, Language, Religious Profession.*] The national religion is Lutherism. The king is despotic; but the administration of civil justice in this kingdom is considered as a model for other nations, and all the laws are contained in one quarto volume. Their language is a dialect of the ancient Teutonic, formerly used in all parts of Scandinavia. Those in the higher ranks of life generally use the German or High Dutch language; they also speak the French fluently, and generally use it to strangers.

228. *Divisions.*] Denmark Proper is divided into two parts, called North and South Jutland, and subdivided into the following dioceses:

NORTH JUTLAND.

SOUTH JUTLAND.

<i>Dioceses.</i>	<i>Chief Towns.</i>	<i>Dioceses.</i>	<i>Chief Towns.</i>
Aalborg,	Aalborg,	Gottorp,	Sleswick.
Wiburg,	Wiburg.	Hederstive,	Hederstive.
Aarhusen,	Aarhus.	Apenrade,	Apenrade.
Ripen,	Ripen.	Flensburg,	Flensburg.
		Tendere,	Tendere.
		Hufum,	Hufum.
		Eyderstede,	Eyderstede.

The Islands of Denmark are,

<i>Isles.</i>	<i>Towns.</i>	<i>Isles.</i>	<i>Towns.</i>
Zeeland or Zealand, }	{ Copenhagen and Elfsineur.	Falster or Falstra, }	Nicoping.
Funen,	{ Odenfee or Ot- tenfee.	Mona or Mune,	Stege.
Arroe,	Kopping.	Saltholm,	Samsoe.
Angland,	Rutcoping.	Alsen,	Sundersburg.
alland,	Naxchow.	Femerer,	Samos.
		Bornholm,	Nex.

229. *Baltic Sea.*] The waters neither ebb nor flow in the Baltic, though a current sets through the Sound, or mouth of it, into the German Ocean. Sometimes, indeed, this current is stopped by strong winds from the N. W. and then large quantities of water are driven into the harbours of the Baltic. Between the continent, and the large islands of Zealand and Funen are the two famous mouths or straits called the Great and Little Belt, and the Ore Sound. The latter, which separates Denmark from Sweden, is not above a hundred and thirty-one fathoms broad in the narrowest part. And this being the usual passage for ships in and out of the Baltic, and under the dominion of the king of Denmark, that prince exacts a certain tribute or toll from all ships trading to any part of the East Sea.

230. *Air, Soil, and Produce.*] The air is sharp, but it's rigour is abated from it's vicinity to the sea. Their summers are very short, but hot, and vegetation goes on very fast. The soil is in many places barren, especially on the high mountains, which abound in several parts of the country; but there are very large and fertile pastures in the valleys, where black cattle are fed, and many of them sent to the Netherlands, where they grow to a prodigious size. Here is also a numerous race of strong, though little, horses, especially in Wiburg. In some parts there are excellent arable lands, which, besides producing corn sufficient for the inhabitants, furnish considerable quantities for exportation. Mecklenburg is in a great measure supplied with corn from the Islands of Falster and Mona; and the Dutch fetch many ship loads annually from the Island of Lalland.

231. *Mountains, Rivers, and Lakes.*] None of the mountains of Denmark merit a particular description. The highest are on the north-east side of Gottorp; but there are many others disseminated through the whole country.

The rivers are very numerous in this country, especially in South Jutland and the Duchy of Sleswick, but not one large enough to receive ships of any considerable burthen. The Eyder is the largest, and will admit of large ships at it's mouth; but this is rather a bay than a river. The smaller, however, though not navigable, greatly contribute to fertilize the countries through which they flow. There are a considerable number of lakes too, which, as well as the rivers, abound in fish of various kinds, as salmon, perch, tench, trouts, eels, flounders, &c.

232. *Manufactures and Commerce.*] The Danes have some manufactures of hardware, and artists of every kind are now pretty well advanced in their respective professions. They may probably soon equal those of other nations, but at present the sale of their productions is almost limited to their own country.

Many attempts have been made to render the trade of this kingdom very extensive, but they have not yet succeeded. It may, indeed, at present, be considered as the centre of the important and profitable trade of the Baltic. Here are several companies established for the encouragement of trade, particularly the Asiatic company, the West Indian and Guinea companies, a general trading company, and an Icelandic Finmark company. But the favourite project of drawing the

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extensive trade of Hamburg to Altena, a town not above a mile distant from it, but in the dominions of Denmark, has not yet been successful. The exports of this country are black cattle, horses, corn, butter, tallow, hides, stock-fish, train-oil, tar, pitch, iron, and timber, of various kinds; oak is forbidden, by a particular ordinance, to be sent out of the kingdom. The imports, besides the East and West Indian commodities from their settlements in those parts, consist of salt, wine, brandy, &c.

In the year 1736, a bank was established at Copenhagen, whose notes, from ten to a hundred rix-dollars, pass current in every part of the kingdom. An insurance company for shipping was also established about the same time, and it appears from the custom-house books of 1770, that three thousand one hundred and sixty ships and small craft, entered the port of Copenhagen during that year.

233. *Learning and Schools.*] Besides the university at Copenhagen, consisting of four colleges, there are several well-regulated schools in most of the large towns in the kingdom. Denmark has produced several learned men, among whom we may reckon Tycho Brahe, Borchius, and the Bartholines, especially eminent in astronomy or medicine.

The ancient inscriptions, cut upon the rocks in several parts of Denmark, have much engaged the attention of the learned. They are in the Runic character, and thought to be historical, but so imperfectly known even to antiquarians themselves, that they are now ignorant of their true import. This method of cutting the accounts of memorable events upon rocks, is thought to be the original method of writing, before paper of any kind, or waxen tables were known. "Oh that my words," said Job, "were engraven with an iron pen and lead, in the rock for ever?"

History.] Denmark is one of the most ancient kingdoms in Europe. In the eighth and ninth centuries of the Christian æra, the Danes and Norwegians inhabited, as powerful nations, on the shores of the Baltic and the Northern Ocean; made frequent descents by sea upon the more southern coasts of Europe; obtained new establishments in France, Britain, in the Scottish Isles, in Man, and in Ireland. Internal misfortunes, and the disasters of these descents, at length thinned their numbers, and put an end to their maritime expeditions. As these events took place, they were converted to Christianity. In the succeeding centuries they declined to comparative insignificance among the nations of Europe. Intermarriage allied the Danish kings to those of Scotland, with whom they had been long at variance. In the beginning of the seventeenth century, the Danish sovereigns had, at one time, nearly established their dominion likewise over both Norway and Sweden, so as thus to form one great northern monarchy. This plan of ambition was defeated; and Denmark was greatly weakened by the efforts which had been made to accomplish it. Towards the end of that century, the government, which had never hitherto been reduced to the strictly feudal form of Southern Europe, was, by the artifices of the monarch, and the rivalry between the peasantry and the nobles, reduced into a form of domination, not very distant from absolute despotism.

potism. Since that period, no extraordinary events have arisen, either to produce any remarkable change on the internal political condition of the Danish government, or to alter the importance of Denmark in the system of the European. The ambition and valour of Charles XII. of Sweden, at one time threatened almost the entire subjugation of the Danish monarchy. His misfortunes and premature death averted the mischief. Since, the new greatness of Russia, and the connection of the British sovereigns with the north of Germany, have transferred the centre of European policy more towards the north; the friendship of the Danish court has, with great assiduity and warm competition, been courted by Britain, France, and Russia. The mission of five men of letters, about the year 1760, to explore the antiquities and natural history of Arabia, and the other countries of the East, did great honour to the reign of Frederick IV. and the ministry of Count Bernstorff. Niebuhr has related the results of that voyage. The marriage of the Danish king with the sister of the present sovereign of Britain, proved unfortunate. The son of that marriage now conducts the affairs of the Danish government, as is said, with great ability.

SECTION XXVII.

Norway, Iceland, &c.

Norway is bounded on the south by the entrance into the Baltic called the Cattegat; on the west and north by the Northern Ocean; and on the east by a long ridge of mountains, which separates it from Sweden.

234. *Divisions.*] It is divided and subdivided in the following manner:

<i>Divisions.</i>	<i>Subdivisions.</i>	<i>Chief Towns.</i>
North Division,	Wardhuys, or Norwegian Lapland.	Wardhuys.
Middle Division,	Drontheim and Berghen,	Drontheim, Berghen, Stavanger.
South Division,	Anslo or Aggerhuys,	Aggerhuys, Fredericksstadt, Christiana.

235. *Climate and Produce.*] The air in Norway is generally pure and salubrious; very dry in the midland parts of the country, but moist on the sea coasts. In winter the cold is excessive, and the whole country seems covered with ice and snow. The peasants bring the produce of their lands to market upon sledges, and carry back in the same vehicles the commodities they want in their sequestered places of abode. Nor are the heats of summer less remarkable: the various species of vegetables, particularly barley, grow up and ripen in six weeks, or two months; vegetation being always accelerated

ated in a wonderful manner when there is only a short season allowed. Hence we need not be surprised to find that, notwithstanding the severe frosts, great quantities of corn are produced in Norway. The pastures also, especially in the valleys, are equal to those in most countries; so that the inhabitants have cattle, butter, cheese, &c. sufficient for their own consumption. They have also garden vegetables in great plenty; and they have lately made very considerable improvements in gardening and propagating fruit trees. Their large and extensive forests form a principal source of their wealth. In these are found amazing quantities of fir, pine, elm, ash, yew, beech, oak, alder, &c.

236. *Stones.*] Norway abounds in quarries of excellent marble of all colours; some detached pieces of alabaster; several kinds of spar, chalk-stone, cement-stone, mill-stone, baking-stone, iron-stone, slate, &c. swine-stone, the magnet or load-stone, and the amianthus or asbestos. In this are likewise found amethysts, agate, granates, beautiful crystals, pyrites or quartz, &c. but there are no flints.

The metals are of several kinds. At Numedale, near Drammen, there is a mine with a vein of pure massy silver; there is another with very rich ore at Jarlesberg; and a third at Kondgsberg. There are several copper mines, three of them remarkably rich. Iron mines are found almost every where in the mountains. Here are also mines of quicksilver, sulphur, salt, vitriol, and alum.

237. *Animals.*] The tame animals of Norway are a breed of small but well-proportioned horses, black cattle, sheep, goats, kids, a few dogs, and a great number of cats and dogs. The wild animals are the elk, the rein-deer, the lynx, the bear, the glutton, the fox, the wolf, the leming, the ermin, the marten, the beaver, the hare, the rabbit, and the wild cat: there are many of them found in all the cold northern countries.

There are most of the birds in Norway that are common in Europe, and its sea-coasts are covered with innumerable flights of water fowl; and here are numerous flocks of fowl that are peculiar to the northern countries.

There is a very great variety of fish found in the lakes, rivers, or seas of Norway; and the latter is the habitation of several extraordinary creatures, among which the most remarkable are the sea-snake and kraken.

238. *Mountains, Rivers.*] The mountains of Norway are remarkable for their extent, their height, and the torrents of water that gush from their declivities. They cover the greater part of the country, and strike a stranger with terror. The roads over these mountains are equally terrible and dangerous, there being often no other path than that is formed by an ill-secured wooden bridge, thrown over a breach of a frightful precipice or roaring cataract. These roads wind in such a manner, as to render the passage over the mountain Hardangerfield, twenty English miles, extremely dangerous. The same may be said of that over Filefield, which is about fifty miles, and the post prevents travellers from being lost or bewildered, the way is marked by posts, fixed at the distance of two hundred paces from each other.

each other; and on Filefield are two houses furnished with fire, light and kitchen utensils, at the public expence, for the convenience of those who are obliged to pass along this dreadful road.

There are several large rivers in Norway, but none that are navigable farther than their mouth for ships of any considerable burthen on account of the cataracts or waterfalls occasioned by the intervening rocks and cliffs. They are, however, of the greatest use to the inhabitants for conveying their timber from the mountains to the sea-ports as well as driving their mills. The lakes are not remarkably large but many of them very deep. We may reckon all these among the curiosities of Norway; and add to these it's fathomless caverns, and it's rapid whirlpools, especially that prodigious one, the Maelstrom, on it's western coast.

239. *Commerce, Language, &c.*] The exports of Norway consist chiefly of the natural productions of the country, as timber, copper, iron, marble, mill-stones, fish, furs, feathers, tallow, tar, oil, alum, vitriol, &c. The Norwegians being chiefly employed in the mines, grazing and feeding cattle, felling wood, floating timber, burning charcoal, extracting tar from the roots of felled trees, hunting, shooting, and bird-catching; their imports consist of many of the luxuries, and most of the necessaries, of life.

They profess Lutherism, and also speak the same language that is used in Denmark; but their original tongue is that of Iceland.

240. *Farro Isles.*] The Farro islands receive their name from the being in a cluster so close together, that the inhabitants ferry over from one island to another. They are situated in the Northern Ocean, in sixty-four deg. of north latitude, and seven deg. of west longitude. They are twenty-four in number, and the whole cluster extends about sixty miles in length and forty in breadth. The inhabitants live chiefly by fishing, and add hardly any thing to the revenues of Denmark.

241. *Iceland.*] Iceland, situated in the Northern or Atlantic Ocean, is about seven hundred and twenty-six miles in length, from east to west, and three hundred from north to south. It lies between sixty-three and sixty-eight deg. of north latitude, and between fourteen and twenty-nine deg. of west longitude; and, from it's insular situation, enjoys a milder temperature of climate than the same latitude on the continent experiences. The face of the country is very mountainous, and on the southern coasts are islands and rocks, where sea-fowls build in great quantities; most kinds of wild fowl abound in Iceland, and the surrounding sea yields plenty of fish. The country is well watered with large rivers which flow from the mountains and large lakes, besides innumerable rivulets and streams. In some places there are chalybeate springs, and in many parts of the island boiling-hot spouting water springs, of which the most remarkable and the largest is Geysir, not far from Skalholt; in approaching towards it, a tremendous noise is heard like the rushing of a torrent precipitating itself from the rocks. The water issues from this spring several times a day, but always by starts, and after certain intervals; and travellers have affirmed, that it rises to the height of sixty fathoms.

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SECTION XXXI.

Prussia.

Prussia, the country of the ancient Borussi, taken in a limited sense, is bounded on the north by part of Samogitia, on the south by Poland Proper and Masovia, on the east by part of Lithuania, and on the west by Polish Prussia and the Baltic; but taken in it's full extent, this kingdom consists of various territories disseminated over Germany, Poland, Swisserland, and the northern regions, partly derived from legal succession, but by far the greater part from war, violence and usurpation.

263. *Territories.*] The principal divisions of which this monarchy composed, are Ducal, now Regal Prussia, situated in Poland; Brandenburg, Prussian Pomerania, and Swedish Pomerania, in Upper Saxony; Magdeburg and Halberstadt, in Lower Saxony; Glatz, in Bohemia; Minden, Ravensburg, Lingen, Cleves, Meurs, and Mark, in the duchy of Westphalia; East Friesland, Lippe, Gulick, and Tackenberg, in the circle of Westphalia; the margraviate of Anspach, in the circle of Franconia; Gelder, in the Netherlands; Neufchatel, in Swisserland; and part of Silesia, and the countries lately wrested from Poland.

264. *Climate, Soil, Animals, and Fossils.*] In countries so various, and districts so dispersed, any general account of the air must be liable to many exceptions; however, upon the whole, it seems favourable to health. The soil is fruitful in corn and other commodities, nor is the country deficient in a proportionate number of animals common to the climate, such as horses, cows, sheep, deer, bears, wolves, wild cats, and foxes; and the rivers and lakes are amply stored with fish. There are not many mines in Prussia; a few, however, are found of copper and lead, and some of iron. These afford materials for the employment of artists, but very little metal, in it's crude state, is exported. The principal minerals found in this country are sulphur, saltpetre, nitre, and lapis calaminaris. Here are several quarries of marble, and some of slate; a species of marble has also been discovered in many of the mountains.

Several kinds of bitumen too are found here, but the principal is asphaltum, of which Prussia has been considered as the native country. This celebrated bitumen, though originally generated in the earth, is found in plenty in the Baltic Sea, especially near the sea-shore of Sudavia, where it swims on the water, and is taken up by nets.

265. *Mountains, Forests, Rivers, and Lakes.*] There are not many remarkable mountains in Prussia. There is, however, a pretty extensive chain on the frontiers of Poland, and several single ones scattered through the different parts of the kingdom. There are several large

large and extensive forests, which afford great quantities of fir and other excellent timber.

The principal rivers are the Vistula, the Pregel, the Memel, or Mammel, the Passage, and the Elbe; they are all subject to inundations, whereby the country is often damaged. The lakes and canals afford great conveniences for transporting merchandize; and, for its extent, the kingdom of Prussia has the most inland navigation of any other in Europe, the Netherlands excepted.

266. *Manufactures, Commerce.*] Under the politic administration of the late king, who seemed to have adopted the truest maxims of enriching himself, by bestowing the means of affluence on his subjects, every art and manufacture daily improved and increased; and those of glass, iron works, silk, cloth, camlet, linen, stockings, paper, powder, and copper and brass, are particularly flourishing.

Being advantageously situated for trade, the extension of which is promoted by a college of commerce and navigation, Prussia carries on a considerable foreign traffic; but as its imports are trifling compared with its exports, the balance of trade in its favour is greater than that of any other European country.

Frederick the Second was desirous to procure to his dominions the advantages of a flourishing trade. His endeavours towards that end were, in some measure, followed up under the reign of his immediate successor. Since the conclusion of a peace between Prussia and France, and the accession of another sovereign to the Prussian throne, the attention of the government of this kingdom has been, more than ever, directed to procure to it every possible commercial advantage. An attempt to manufacture sugar from the *Mangel Wurzel*, or *Root of Scurcity*, has been nobly encouraged by the young monarch, and is likely to prove in the end successful. To allure foreign merchants and artificers to bring their ingenuity, industry, and moneyed capital into Prussia, this prince has recently offered the most flattering privileges to strangers of this character, who shall chuse to settle in his territories. As far as, without an adequate extent of sea-coast, any country can become eminently commercial, the Prussian dominions are, at present, in a very happy progress to become such.

267. *Curiosities.*] The amber-pits of Prussia form its principal natural curiosities, and from these the king is said to derive 26,000 dollars annually.

268. *Schools, Languages, religious Profession.*] At Koningberg is an university, founded by the margrave, Albert, in the year 1544, and a college, styled the *Collegium Fredericianum*; and academies, or schools for the instruction of youth, are dispersed throughout the kingdom. The language varies little from that of Poland.

Different professions of religion are tolerated in Prussia, but the nationally established ones are those of Luther and Calvin.

269. *History, Government.*] The Prussians, or Borussia, were not heard of as a people, till 1007, when they were governed by duke of their own. After a succession of bloody wars, they were conquered by the German knights of the Teutonic order, in 1228. In 1454 the Poles subdued the western part of it, and in 1525, the eastern part

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Such a vast tract of country may naturally be supposed to contain a great number of inhabitants; but these bear a very small proportion to the extent of Sweden, great part of it being rendered uninhabitable by seas, lakes, mountains, woods, and marshes.

243. *Divisions.*] This kingdom is divided into seven parts or provinces, and these are again subdivided as in the following synopsis.

Provinces,	Subdivisions.	Principal Towns.
Sweden, properly so called, lying between Norway on the west and the Gulph of Bothnia; is divided into eleven parts, viz.	Uplandia.	Stockholm, Upsal.
	Sundermania.	Nickopen.
	Westmania.	Arosen.
	Nericia.	Orebro.
	Gestricia.	Geval.
	Helsingia.	Hadswickwalt.
	Dalecarlia.	Hedemore.
	Medelpadia.	Setanger.
	Angermania.	Hernofand.
	Jemtia.	Uma, Luta.
	West Bothnia.	Pistoia, Torne.
Gothnia or Gothland, on the south side of Swedeland, into three parts, viz.	E. Gothland.	Norkoping and Calmar.
	Smalandia.	Barkholm.
	Isle of Oeland.	Gottenburg.
	W. Gothland.	
Livonia on the south of Finland Gulph.	Vermeland.	
	Dalia.	
Ingria, on the north-east of Livonia.	Estonia,	} Revel, Narva.
	Letten, or Letitia.	} Riga.
Finland on the east side of the Gulph of Bothnia.	Ingria, proper.	Orescal or Noteberg.
	Ingermania.	Caperio.
	Soluska.	Juanegrod.
	Finland, proper.	Abo.
	Nylandia.	Helsingfordia.
	Carelia.	Wyburg.
	Kexholm.	Kexholm.
	Savolaxia.	Kofnipe.
	Tavastin.	Javastus.
	Cajunia.	Cajeneberge.
Swedish Lapland, in the northern part of the country.	Anjermania-Lapmark	Aocfalbo.
	Pitha-Lapmark.	Pitha.
	Uma-Lapmark.	Uma.
	Lula-Lapmark.	Lula.
	Tornea-Lapmark.	Tornea.
	Kimi-Lapmark.	Kimi.

The islands of Gothland, Oeland, Aland, Hogland and Rugen.

The provinces of Livonia and Ingria, with Kexholm and Carelia, Finland, and the islands of Dago and Oesfel, are under the dominion of Russia.

244. *Climate and Produce.*] The natural history of Sweden, both as climate, animals, vegetables, and minerals, is much the same with that

that of Norway, but the inhabitants appear to be more advanced in arts. Under the direction of the colleges established for the improvement of agriculture, and encouraged by the example of persons in affluent circumstances, the peasants have at length, in a great measure, corrected the natural sterility of their country; and they now in favourable seasons, raise grain sufficient to supply the wants of the inhabitants. The fields in summer are covered with a beautiful verdure enamelled with flowers, and produce great quantities of currants, raspberries, strawberries, and other small fruit. Ostrogothia is the most fertile province in the kingdom, and bears large crops of rye, wheat, barley, oats, beans, and peas. If the wheat were sown in the autumn, as it generally is in England, there might be a danger of the grain being destroyed in the long piercing winter; but the method is different in Sweden; the vegetation is there so rapid, that the corn is ripe particularly in the northern parts, in eight or ten weeks after it is sown; and the soil is so meliorated by the frost and coat of snow during the winter, that the land is fit to receive the seed almost as soon as the cold weather is over.

245. *Exports and Manufactures.*] The produce of their mines is various, but the metals are principally silver, copper, and iron. The manufactures are all of them but lately erected; even that of iron, the chief support of this country, was introduced only in the sixteenth century. Before that time the Swedes sent their iron ore to the Hanseatic towns, and brought it back again manufactured into utensils; but they have now founderies, forges, wire, and flattening mills, &c. the other arts and manufactures, which are common to Europe, they also carry on; as silks, cloths, paper, porcelain, and the chemical preparations of alum, sugar, soap, salt, &c. their woollen manufactures are particularly excellent. Vast quantities of copper, brass, and steel, are also now wrought in this country. To their exports of metals, timber, tallow, hemp, flax, hides, peltry, furs, fish, &c. they also add ships completely fitted out for sea.

246. *Religious Profession, Language.*] The national profession of religion is the same in Sweden as in Denmark and Norway. There is such an affinity between the Swedish, Danish, and Norwegian tongues, which are so many dialects of the Teutonic, that the inhabitants of the three kingdoms can perfectly understand one another. From many Runic inscriptions, still to be seen near the ancient depositories of the dead, it is evident that the Swedes made use of that character in the ages of Pagan idolatry.

247. *Learning, Schools.*] Several branches of learning have been cultivated of late years in this country. Those in the higher ranks are generally conversant in polite literature. The natural philosopher Hæfelquist, died as he was making discoveries in the oriental regions. That able civilian, politician, and historian, Puffendorf, was a native of Sweden, as well as the late Linnæus, who, to the deepest researches in every branch of natural history, united the utmost systematic precision. The passion of Christina for literature, her munificence to the learned, and her own acquirements in science, are sufficiently known. The fine arts at this time were particularly patronized

nized by the government, and several learned Swedes in other kingdoms bear great reputation in science.

The manuscripts of that singular man, Em. Swedenborg, author of more than sixty quarto volumes, are still preserved as a great curiosity in the royal academy of sciences at Stockholm.

The universities of Sweden are those of Upsal, Abo, and Lund; that of Upsal was instituted four hundred years ago, and being patronized by several successive monarchs, has gained particular celebrity; but these of Abo and Lund are not so well endowed, nor so flourishing. Seminaries for the education of youth are established in different towns; and every diocese is provided with a free-school, in which boys are qualified for the university. The Royal Patriotic Society has rendered very eminent services to the country; and, besides this institution, there are, at Stockholm, academies of sciences, of painting, sculpture, and mathematics. Several volumes of memoirs have been published by the members of these institutions, which have obtained a favourable reception abroad; however, the greatest literary curiosity, in this country, is a manuscript copy, in letters of silver, of a translation of the writings of the Evangelists into Gothic, by Ulphila, bishop of Thrace, above one thousand three hundred years old.

248. *History, Government.*] The Swedes regard themselves as the genuine descendants of the original stock of the ancient Goths. During the early greatness of the Danes, the Swedes were less eminent as a nation. Upon their subjection to the ecclesiastical authority of Rome, they became objects of attention to the other nations of Europe. Margaret, Queen of Denmark and Norway, became, in the end of the fourteenth century, likewise Queen of Sweden. Until the beginning of the fifteenth century, the Swedes continued subject to the sovereign of Denmark. The impotent tyranny of the Dane then provoked them to revolt. After a bloody civil war, in which Gustavus Vasa, of the race of the ancient nobility, approved himself the great champion of his country's freedom; Sweden was entirely emancipated from the Danish yoke. Gustavus Vasa was placed on the throne, by the brave and grateful people whom he had delivered from servitude. The Lutheran religion was finally established in Sweden. The ancient constitution of the state was restored. His son proved a weak prince; but in the first part of the seventeenth century, Gustavus Adolphus, flaming the character of the protector of the protestant religion, and the umpire of the contentions of Germany, exalted Sweden to a degree of political greatness which it had never before known. He perished before he could bring that war, in which he had engaged, to a termination. But the generals and the soldiers whom he had formed with the pecuniary aid, prolonged the contest, till it, at last, ended, in the year 1648, in securing the political independency of the principalities and states of Germany, and the safety of the protestant religion wherever it had been already received. His daughter Christina is famous, as the princess under whose reign this grand triumph of the Swedish arms was finally achieved. She is illustrious, famed, also, for her learning, for her patronage of learned men, for her conversion to the catholic religion, her abdication of her throne, and her retreat, to

spend the last years of her life at Rome. The martial spirit of the Swedes still continued to burn. At last, in Charles XII. they had a monarch, whose extravagant heroism, after terrifying and astonishing the world, brought himself to a premature end, and left his kingdom miserably weakened and impoverished. The best privileges of royalty were, by his successors, surrendered to the senate. This aristocracy with but a nominal sovereign at their head, ruled, without patriotism and without honour, till, about the year 1772, the peasants and citizens, to free themselves from the tyranny of the nobles, bestowed absolute power on the crown. The dagger of an assassin destroyed the illustrious prince who had been thus honoured. His son now reigns and Sweden is at peace with all the world.

SECTION XXIX.

Muscovy, or Russia.

The empire of Russia is the largest upon the whole globe; it is greater than all the rest of Europe, than the Roman empire in the zenith of its power, or the empire of Darius subdued by Alexander extended in length from the Baltic on the west, to within a few miles of America on the east, upwards of two thousand leagues; and above eight hundred in its greatest breadth from north to south. Its boundaries on the west are Sweden and the Baltic; on the east, China and that part of the Pacific which separates Asia from America; on the north, by the Frozen Ocean, and the impenetrable Arctic Region, and on the south it has Prussian, Polish, Turkish, Persian, Indian, and Tartarian nations. In length, from the Isle of Dagobair as far as its most distant eastern limits, it contains very near a hundred and seventy degrees; so that when it is noon-day in the west, it is very near midnight in the eastern part of this empire. In breadth, it stretches three thousand westerly from south to north, which makes eight hundred leagues. On the south of this extensive empire, the longest day is not sixteen hours; on the north it stretches out to the length of three months.

249. *Climate, Inhabitants, Religious Professions.*] In so extensive tract of country the soils are extremely various. Beyond the 60th degree of latitude, corn scarcely ever arrives at maturity; and beyond the 70th hardly any species of fruit is produced; but in the middle provinces of the empire the soil is fruitful, the woods abound with a variety of animals, the plains are stocked with cattle, and the rivers teem with a variety of excellent fish. In the more southern provinces, the climate is hot; and, where there is a sufficient depth of soil, flowers and fruits arrive at great perfection, the earth is covered with verdure, and indicates a happy fertility. There seem

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hardly less variety among the inhabitants of this extensive empire, which includes in itself numerous nations of Tartars, Kamtschatdales, Samoiedes, Laplanders, &c. Far to the north, in some remote parts of this empire, they live in caverns, and are no more than four feet and a half high; the ancients had a confused idea of these people under the name of Troglodites, and Northern Pigmies, as they had of the Tartars under the name of Scythians; the languages of these widely-dispersed people are different, and their manners are various; in some parts they are much given to roving and plunder; in others, their lives seem innocent and harmless; in some parts they give their attention to agriculture; in others they depend upon the productions of a fruitful, but uncultivated soil. Some of them, who do not meet in societies, make but little, and it is even said, no profession of religion; others, that live in herds, or clans, offer up, some of them, their prisoners perhaps to the principal objects of their wants, adolizing a sheep's skin, because they find nothing more useful than this animal; and others embrace the doctrines of the Greek church, which is the national profession of Russia: where, however, other societies are tolerated and encouraged.

In a late account of Russia, the following nations are enumerated, as comprehended in this great empire:

The Monguls,	Tscouwafches,	Kurilians,
Kalmucs,	Mordvines,	Kistim and Toulivet
Tartars,	Votiaks,	Tartars.
Samoiedes,	Terptyaireis,	Vergo Tomskoi Tar-
Ostiacs,	Tartars of Kasan and	tars,
Burattians,	Orenburg,	Sayan Tartars,
Jakutans,	Of Tobolsk,	Touralinzes,
Tungusians,	Of Tomsk,	Bougharians,
Voguls,	Of the Ob,	Baschkirians,
Laplanders,	Nogayan Tartars,	Mestsceraiks,
Finns,	Tschoulym Tartars,	Barabinzes,
Lettonians,	Katschintz Tartars,	Kirkguisians,
Estouians,	Teleutes,	Beltirians,
Lieffs,	Abinzes,	Yakoutes,
Ingrians,	Biryouffes,	Kamtschatdales,
Tscheremisses,	Cossacs,	

and various others, some of which must be considered rather as distinct tribes than as different nations. (See art. 131.)

250. *Divisions.*] Muscovy, on the European part of Russia, besides the territories wrested from Poland, comprehends the following provinces, which may be divided into northern, middle, eastern, western, and southern.

Provinces.	Chief Towns.	Provinces.	Chief Towns.
NORTHERN.		WESTERN.	
Lapland,	Kola.	Gr. Novogorod,	Novogorod.
Samoieda,	Golatina,	Rus. Finland,	Wyburg.
Bellamornskoy,	Kemi.	Kexholm,	Kexholm.
			Meseen,

Meseen,	Meseen,	Karelia,	Notteburg.
Dwina,	Archangel.	Ingria,	Petersburg.
Syrianes,	Kangorod.	SOUTHERN.	
Permia,	Ifma.	Livonia,	Riga, Narva.
Rubeninski,	Kargapol.		Revel, Dorpat.
Belaciada,	Vitegre.		Pernaw, Pilskow.
	MIDDLE.	Smolensko,	Smolensko.
Pereflaf,	Razenskoi.	Zernigof,	Zernigof.
Belozero,	Belozero.	Seefsk.	Seefsk.
Wologda,	Wologda.	Ukrain. or the	
Jereflaf,	Jereflaf.	Country of the	
Tweer,	Tweer.	old Cossacks.	Kiof, or Kiow.
Moscow,	Moscow.		
Belgorod,	Woronetz, or		
	Veronefe.		
	EASTERN.		
Bulgar,	Bulgar.		
Kanfan,	Kanfan.		
Lit. Novogorod,	Nife-Novogorod.		
Don Cassacks,	Donetskoi.		

251. *Produce, Manufactures, Commerce.*] The natural history of this country is much the same with that of Scandinavia both as to animal, vegetable, and mineral productions, and climate and soil; and within the present century their amazing improvements in sciences and arts have enabled them to avail themselves of their natural advantages and become, among their neighbours, a great commercial people. Peter the Great, though a tyrant, may be accounted the political father of this country. Patient of fatigue, he travelled and laboured in other countries to acquire their improvements, and then, with determinate severity, imposed them upon his rude and uncultivated subjects at home, effecting a change in his empire, which astonished the world and procured him the epithet of the Great.

To all the articles of manufacture and commerce which they have in common with Sweden and Denmark, the Russians add the costly commodities of the East, as silk, cotton, teas, gold, &c. These they receive by caravans from China, and from India and Persia, by way of the Caspian Sea.

252. *Mountains, Forests, Rivers, Lakes, Canals.*] The Zimnopol are the principal mountains of Russia: they are supposed to be the celebrated Montes Riphæi of the ancients; they are remarkable both for their amazing height and the perpetual snows that cover their summits; but, besides these, there is a vast variety of others, some forming extensive chains, and others scattered singly in different parts of the country.

Forests abound in this extensive country; in many places prodigious tracts of land form one continued forest, producing immense quantities of timber, pitch, tar, and turpentine.

Few countries exhibit more or larger rivers than Russia, but the principal are the Wolga, the Don, or Tanais, the Boristhenes, Dnieper, and the Dwina. The lakes are also numerous, but the most remarkable

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remarkable are those of Ladoga and Onega. From lake to lake, and from river to river, the Czar Peter planned extensive and spacious canals, some of these he opened, with incredible labour and expence, for several hundreds of miles; others he did not live to see completed: they have, however, since his day, been carried into execution.

253. *Language, Learning, Moscow, Petersburg.*] The Slavonian language forms the basis of that of Russia; but the latter is enriched with many words from the Greek. The alphabet consists of forty-two characters, principally Greek, as they were written in the ninth century; but as this did not express every particular sound, recourse was had to several Hebrew letters, and some arbitrary signs were invented. Different dialects however prevail in different provinces, the principal of which are those of Muscovy, Novogorod, and Archangel; and those in higher ranks generally speak French and High Dutch, while their priests speak the modern Greek.

The Czar Peter, who may be said to have first enrolled his country among the polished nations of Europe, was not inattentive, among his other labours, to literature and science: he erected several academies, and other seminaries of learning, in various parts of his extended dominions: he founded no less than three academies in Moscow; one for classical learning, one for mathematics, and the other for navigation and astronomy. This city, long the capital of the empire, and the centre of the Russian dominions, before they extended themselves on the side of China and Persia, stands in the middle of a large, beautiful, and fertile plain, on the Moskwa, and on two smaller rivers, which unite their streams with the Occa, and discharge themselves into the Volga. In the thirteenth century it was no more than a cluster of cottages, the inhabitants wretchedly groaning under oppression from the race of Jenghiz-Khan.

At Petersburg he founded an university and four academies: the first is for the sciences and belles-lettres, the second for navigation, the third for dead languages, and the fourth for tactics. The Petropolitan Society have published several volumes of papers, which have been well received by the literati of Europe, especially those on mathematical, astronomical, and philosophical subjects.

But the czar not only founded the academies of Petersburg, but the city itself; and from him it took its name. It is situated on the gulph of Kronstadt, in the midst of nine branches of rivers, by which its different quarters are divided. The rivers are branched out into seven canals, which wash the walls of one of the imperial palaces, of the admiralty, of the dock-yard for the galleys, and of several manufactories. There was nothing of all this in 1702, it being then an impassable morass; and in 1703 there were only a few fishermen's huts here. But Peter saw the benefit that must result from a city built on this spot, and accordingly employed above thirty thousand men for several years in driving piles, and laying the foundation of this celebrated place.

254. *History.*] While, of the ancient barbarian or savage inhabitants of the Northern Europe and Asia, a great part descended as conquerors into China, into Hindostan, into Persia, into the eastern and

the western provinces of the Roman empire; others were destined to form new empires and principalities in the deserted regions of ancient Scythia. Russia, or Muscovy, was occupied by a branch of the Slavonians. For a long series of years, the Russians lived under the dominion of their Great Dukes, little known to the people of Western Europe, but having an intercourse by the navigation of the Euxine with the oriental capital of Constantinople, they became, in due time, converts to the Christianity of the Greek Church. While the intercourse of religion, policy, and commerce, gradually civilized the middle and the southern kingdoms of Europe, the Russians long remained in a state of barbarism, shut out from the connexions of both European and Asiatic policy. The Polish nation, powerful and eminent in the dark ages of the history of modern Europe, subjugated and retained, for a while, an ascendancy over the Dukes of Russia. Moscow became, in the mean time, a great capital. The Russian sovereigns vindicated their independency, and extended their dominions. English merchants found, at length, their way to Archangel, and the interests of commerce introduced Russia into the system of the European powers. Considerable changes took place upon the ancient policy and manners of the Russian empire. At length, the famous czar, or emperor, Peter the Great, in the beginning of the present century, reformed the military establishments, the civil policy, and the manners of his subjects; introduced among them as many as possible of the arts of civilized Europe; founded Petersburg at the mouth of the Neva; by his victories over the Swedes raised Russia to hold the balance of political power in the north; and opened the gate of this wide empire to the access of Europe, civilization, industry, and intelligence. Many of the means which he employed for these ends were frustrated; but many, too, proved fully successful. His successor could not avoid acting upon his plan, &c. The empire has been governed, almost ever since his death, by a succession of women. Peter III. was cut off to make way for the accession of his wife to sole sway. Her reign was glorious. Her son and successor, Paul, appears to rule with equal ability. He has at last interposed, to interrupt the French in their endeavours to overturn the thrones of the world. His arms have been gloriously successful.

SECTION XXX.

Poland.

Before it's late dismemberment, Poland, (anciently called Sarmatia) with the annexed duchy of Lithuania, was bounded on the north by Livonia, Muscovy, and the Baltic sea; on the east by Muscovy; on the south by Hungary, Turkey, and Little Tartary; and on the west by

by Germany; extending from forty-seven deg. forty min. to fifty-six deg. thirty min. north latitude; and between sixteen and thirty-four deg. east longitude.

255. *Divisions.*] It has been divided into the provinces of Great and Little Poland, Polish Prussia, Samogitia, Courland, Lithuania, Masovia, Podolachia, Polesia, Red Russia, Podolia, and Volhinia; and again subdivided into palatinates, as in the following table:

<i>Palatinates.</i>	<i>Chief Towns.</i>	<i>Palatinates.</i>	<i>Chief Towns.</i>
GREAT POLAND on the West.		LITHUANIA North-East.	
Poznań,	Poznań.	Vilna,	Vilna.
Kalisz,	Kalisz Gnesna.	Braşlaw,	Braşlaw.
Brześć,	Brześć.	Polotsk,	Polotsk.
Wladislaw,	Wladislaw,	Vipetsk,	Vipetsk.
Dobrzyn,	Dobrzyn.	Troki,	Troki, Grodno.
Plotzko,	Plotzko.	Minsk,	Minsk.
Rawa,	Rawa.	Miscislaff,	Miscislaff.
Lenzits,	Lenzits,	Novogrodek,	Novogrodek.
Sieradz,	Sieradz.	WARSOVIA, or MASOVIA.	
Inowlodz,	Inowlodz.	Warsaw.	
LITTLE POLAND on the West.		Czerſk,	Czerſk.
Cracow,	Cracow.	Novogorod.	
Sandomir,	Sandomir.	PODOLACHIA in the Middle.	
Lublin,	Lublin.	Bielsk,	Bielsk.
POLISH PRUSSIA North-West.		POLESIA in the Middle.	
Dantzic.	Dantzic.	Brzeſk,	Brzeſk.
Elbin.	Elbin.	RED RUSSIA South-West.	
Marienburg.	Marienburg.	Chelm,	Chelm.
Culm.	Culm.	Belz,	Belz.
Thorn.	Thorn.	Lemburg,	Lemburg.
SAMOGITIA.		PODOLIA South-East.	
Rosime.	Rosime.	Upper Podolia,	Carminiec.
Miedniki.	Miedniki.	Lower Podolia,	Bratzlaw.
COURLAND North.		VOLHINIA South-East.	
Courland Proper,	Goldingen.	Upper Volhinia,	Luko.
Semgallia,	Mittaw.	Lower Volhinia,	Bialgorod.

256. *Air and Soil.*] Poland is generally a champaign country; the air is mostly temperate; in the northern parts it is cold, but exceedingly healthy. The soil in general is extremely rich. The earth is of various kinds, colours, and properties: some being excellent for the potter's use, furnishing all Poland with earthen ware; while others supply the pipe-makers and other artificers with clays of different sorts.

257. *Vegetables, Animals, and Fossils.*] This country is extremely fruitful, producing vast quantities of corn, and the pastures, particularly in Podolia, are so rich, that the height of the grass is often such as to conceal the cattle that are grazing from the sight of the passengers. In many places there are vines, whose grapes are agreeable to the taste, but the wines made from them usually prove sharp. It is said,

said, that in May and June, the inhabitants gather a sort of manna, which falls on the grass during the night; they esteem it a great delicacy, and have various ways of dressing it. This seems rather unaccountable; but as May and June are the season when plants are copiously supplied with juices, perhaps it is these, that, cozing through the pores of the herbs, are concreted on their surface by the cold and dew of the night, and form the manna, rather than any extraneous or foreign matter derived from the atmosphere.

Horses, asses, and oxen, distinguished by the names of uri, and buffaloes, wolves, bears, elks, bohacks, foxes, hares, &c. run wild in the forests of Poland. Here are also birds and fishes of various kinds.

Here are mines of gold, silver, copper, lead, iron, pit-coal, vitriol, arsenic, marble of all colours, and stones of various kinds; but the most curious are their different sorts of salt-mines.

258. *Mountains, Forests, Rivers, Lakes.*] The principal mountains of Poland are the Cropach, or Carpathian mountains, which form a craggy ridge, extending three hundred miles in length, separating Poland from Hungary; these are covered with perpetual snows. In the palatinates of Cracow is a mountain called the Wonderful, covered with aromatic plants, flowers, oaks, and pines; full of metals and minerals; and abounding both in fresh and salt springs. Near the centre rises, with a remarkable noise, a spring of clear water, the ebullition of which is said to be greater or less according to the increase or decrease of the moon.

Poland, the eastern part particularly, is remarkable for the extent of it's forests and woods.

The principal rivers are the Vistula or Weyfel; the Warta; the Neister, or Tyras; the Nieper, or Boristhenes: the Niemen; the Bog, or Vagus; and the Dwina.

Of the few lakes in Poland, Gopto, or the White Lake, is the most remarkable, and is said to turn the complexion of those who wash in it swarthy.

259. *Commerce and Manufactures.*] The little trade of Poland is principally carried on at Dantzic, which may be considered as the emporium of this country. The exports of Poland consist of corn, honey, wax, hemp, flax, furs, timber, pot-ashes, salt, salt-petre, brimstone, vitriol, and quicksilver; and it's imports of wines, brandy, spices, wrought silks, cloths, stuffs, jewels, fables, martens, and tin, steel and iron wares. The little manufactures of this country are some linen and woollen cloths, and a little hardware.

260. *Curiosities.*] The wonderful mountains and salt mines, already mentioned, form the principal curiosities of Poland. The salt-mine of Wielitska is the largest in the world, and has been wrought above 600 years. It is 743 feet below the surface, and is 1115 feet in breadth, and 6691 in length. The mine exhibits a spacious plain, with lofty vaulted roofs, supported by columns of salt which have been left standing by the workmen. Here are many public lights continually burning for the general use, and the blaze of these, reflected from every part of the mine, which appears bright and clear as crystal.

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tinged with all the beautiful colours of the rainbow, presents the most dazzling prospect. The eye is bewildered in the immense and glittering scene, which exceeds the most brilliant exhibitions of art, and all that has been fabled by the writers of romance. In various parts of this plain, the huts of the miners and their families are erected, some standing single, and others in clusters like villages. These poor people have very little communication with the world above ground, and many hundreds of them are born and spend their lives here. Through the midst of the plain, the great road passes to the mouth of the mine, and it is generally crowded with carriages bringing masses of salt, which look like prodigious gems. The drivers are generally very merry, and sometimes make excursions to the upper world, but the horses, which are very numerous, when once let down, never see the day-light more. Through a great part of the salt-mine there runs a stream of fresh water, which shews that the mine, deep as it is, is yet not so low as the base of the mountains which contain it, as the water in that case could not find egress.

We may reckon as rarities, the grottos, or catacombs, under the mountains of Kiow, in the deserts of Podolia, wherein are found a great number of human bodies perfectly preserved, being neither so hard nor so black as the mummies of Egypt; some attribute this curiosity to the nature of the soil, which is a dry sand. It has been reported, perhaps with truth, that wild men have been frequently found in the woods; and authors, in accounting for such phenomena, suppose them to have been left there when infants by their parents, whom the Tartars frequently obliged to flee from their habitations; and that these children, so exposed, have been nourished by the bears.

261. *Language, Learning, and Schools.*] The Polish language is a dialect of the Slavonic, and, on account of the vast number of consonants it employs, is extremely harsh and inharmonious: however the Latin tongue is commonly spoken, even by those of inferior rank, though without the least regard to accent, quality, or purity of language. High Dutch and Russian are likewise understood in the provinces bordering on these respective countries.

The Polish universities are those of Cracow, Posen, and Wilna. The first consists of eleven colleges, and has the superintendence of fourteen grammar-schools dispersed through the city; the other two are not so eminent.

The nobility and the bulk of the nation are of the church of Rome, but here are a vast number of Protestants, and followers of the Greek church.

This country seems to have been very unpropitious to the growth of literature, though Copernicus, the great restorer of the true astronomy, as well as Vorstius, and some other learned men, were natives of Poland. Casimir, the Jesuit, is famous, as, perhaps, the best of all the modern writers of Latin poetry. But the contempt which the nobility have ever shewn for learning, the vassalage of the lower classes, and the gloomy superstition which has pervaded all ranks of men, were circumstances which wonderfully retarded the progress of arts and sciences. Of late years they appeared, under an amiable and unassuming

assuming king, to be rising superior to these prejudices. The surrounding despots of Russia, Austria, and Prussia, saw the advances of the rising republic with jealousy, and combined together to crush it. As yet the Poles are depressed by these perfidious and overbearing powers; but the Ottoman Porte, whose conduct towards them has been accounted just and honourable, the very reverse of that of their Christian neighbours, seem at present to be espousing their cause.

262. *History.*] Poland, the ancient Sarmatia, was once a kingdom of great eminence in Europe. In the end of the fourteenth century, it's sovereign added to it, by marriage, the Duchy of Lithuania. While the Russians were barbarians, and politically weak; while Sweden, Austria, Prussia, were yet of inconsiderable power and name, Poland was a powerful state. But, the power of it's feudal nobility, the elective nature of it's sovereignty, and some other peculiarities of it's constitution, together with it's remoteness from any considerable intercourse of navigation and trade with the more civilized nations of Europe, prevented it from rising in the scale of political importance, while the strength and greatness of the surrounding nations were exalted. Still, however, in the course of the seventeenth century, it did not entirely lose it's independence. The Poles were considered, for a while, as the guardians of Europe against the irruptions of the Turks, and were venerated on account of their firm and valorous opposition to those warrior propagators of the false religion of Mahomet. John Sobieski had the glory of delivering Vienna, almost in it's last extremity of danger, from the siege of a mighty Turkish army. But the corruption and the contentions of the Polish nobles, with the ill-compacted frame of the Polish constitution, in the beginning of the present century, reduced the Polish crown into the condition of a prize, which the neighbouring nations might contend to acquire and to bestow. The Duke of Saxony had been raised to the Polish throne, but was degraded by Charles XII. of Sweden, who gloried, as in conquering Poland, so, in bestowing it on a Pole, who was among the humblest of his creatures. With the termination of Charles's good fortune, his destination of the Polish throne was reversed. In the progress of the present century, Poland became still more and more contemptible as a state. France interposed, without success, to establish an ascendant influence over the elections to it's throne. Russia, Austria, and Prussia became, at length, exclusively the umpires of it's fate. A part of it's territories they shared among them by amicable partition. The Empress Catharine of Russia raised Poniatowski, a man that had been her paramour, to be sovereign of the rest. He agreed with the Poles, his subjects, to form a new constitution, which might restore to Poland domestic peace and political independency. The sovereigns of Russia and Prussia would not lose their prize. Stanislaus was dethroned. Warsaw was sacked by a Russian army. All the remaining territories of Poland were parted among it's powerful neighbours.

however, that it is thrown up much higher at some times than at others, but it's elevation seldom falls short of ninety feet.

The burning mountains in this country we may consider as the latent cause of the boiling springs; of these the most remarkable are the Hekla, Kotlegau, and Oraife. The eruptions of these have at different times occasioned terrible devastations, deluging the country with water, convulsing it with earthquakes, heaving up new islands in the sea, or pouring forth clouds of ashes, smoke, and sand, in such quantities as to eclipse the light of the sun, and scattering the ruins all over the island; yet the inhabitants are so attached to their native country, they consider themselves as the happiest people on earth. They attend to their fishing and the breeding of cattle. This island produces exceeding fine pasture, which feeds large herds in summer, and affords hay sufficient for sustenance in winter. They have kitchen herbs, roots, and some fruit trees, besides many esculent plants which grow wild on the rocks, and in many families supply the place of flour and meal. In some parts of the island a species of small wheat grows spontaneously, and they reduce it to powder, by parching it over the fire, and then pounding it in mortars. Their total neglect of agriculture has been imagined to have been one of the consequences of a dreadful plague which raged there in the fourteenth century, and swept away most of the inhabitants; the few that escaped to tell the melancholy tale, had found refuge in the mountains where the contagion did not reach. The same terrible disease extended it's baneful influence to Denmark, Norway, and Sweden; where such multitudes died, that none could be spared to recruit this ruined colony.

The entire commerce of Iceland is monopolized by a Danish company. The exports consist of cured provisions, butter, tallow, oil, wool, skins, furs, down, and feathers. The imports are brandy, wine, salt, linen, timber, tobacco, bread, hardware, &c.

The revenue which the king of Denmark draws from this country amounts to 30,000 crowns per annum.

The inhabitants are descended from the ancient Scythians, and the island itself made formerly a part of the empire of Scandinavia. During this early period of time, Iceland was full of people; here the chief ministers of their religion resided; and here the celebrated Edda, or book of Celtic Mythology, was either composed or preserved; and so we have their language been handed down from one generation to another, that the Icelanders are capable of explaining their most ancient traditional histories.

[242. *Greenlands.*] East and West Greenland form the northern boundary of the king of Denmark's dominions, and are, indeed, the seats of all the discoveries hitherto made in that part of the globe.

East Greenland lies in north latitude higher than seventy-six degrees, and between ten and eleven degrees of east longitude. It is destitute of people, except a few convicts transported thither from Russia, who are obliged to winter in this inhospitable clime, and to labour for their liberty in procuring skins, furs, tusks of morse, &c. for the empress orarina.

West Greenland lies in north latitude higher than sixty degrees, and between

tween five and fifty deg. of west longitude, and is peopled, though but thinly.

Through the labours of Danish missionaries, and more especially of those of the Moravians, or Brethren's Unity, several congregations have been gathered from the gross superstitions of the country to the profession of Christianity. Their language resembles that of the Indians of North America; they have a great number of long polysyllables, and excel in poetry. (See art. 145.)

The Copenhagen company engross the little trade of this country and give cloths, cutlery, and various domestic utensils in copper, brass and tin, for whale-blubber, furs, &c.

History.] Norway was once a separate kingdom, of great importance in the North of Europe. Out of it issued a considerable proportion of those pirates, who ravaged the European coasts in the eighth and ninth centuries. Iceland, Greenland, Newfoundland, and even the northern parts of the American continent were, then, discovered by the maritime adventures of the Norwegians. In Iceland they formed a permanent settlement: and in it, they, of consequence, deposited some of the most valuable remains of the ancient religion and literature of Scandinavia. The Norwegian monarchs were long lords paramount of the Orkney, the Shetland, and the Hebridean isles on the Scottish coast; of the Isle of Man, and of the Norse conquests in Ireland: the battle of Largs on the frith of Clyde in Scotland, in which the Scots were victorious, and the consequent death of the Norwegian monarch at Kirkwall, the capital of the Orkney, emancipated the isles from the Norwegian yoke. Inheritance afterwards united Norway under one sovereign with Denmark. Trade, fisheries, the exportation of wood and tar, and improvements in agriculture, have in the present century begun to contribute much to the improvement of the state of human society in both Norway and Iceland. Nor is it improbable but these may be, in due time, rendered as comfortable seats for mankind, as the more southern and temperate regions of Europe.

SECTION XXVIII.

Sweden.

Sweden, including the greatest part of Scandinavia, is situated from fifty-five deg. twenty min. to sixty-nine deg. thirty min. north latitude, and between the twelfth and thirtieth of east longitude. It is bounded on the south by the Baltic, the sound and the Cattegat, the Schagger-rack sea; by Danish Lapland on the North; by Russia on the east; and by the mountains of Norway on the west.

part. In 1683, it became independent. In the year 1702, it's sovereign was enabled, by the favour of King William III. of England, to assume the title of King of Prussia, and to procure himself to be recognized under that title by the other powers of Europe. He was allied to the British crowns in the order of the Protestant succession, after the House of Hanover. During the wars which ended in the peace of Utrecht, he adhered to the English interests. While that peace was negociated, his conduct being more acceptable to the English ministers than that of the Elector of Hanover, his ambassador was confidentially trusted by them, and he was gratified with various advantages which he might otherwise have failed to obtain. His son and successor obtained in marriage the daughter of George I. of Britain. He neglected the beneficent government of his peaceful and industrious subjects, but studied to augment, to discipline, and by every means to strengthen his army. The new system of policy which the elevation of the Elector to the British throne had introduced into the north of Germany, gave the King of Prussia new importance, sometimes as the ally, sometimes as the adversary of Britain. Though he augmented his army, he, at the same time, amassed vast treasures. At his death, he left to his son the means of indulging a boundless ambition. That young monarch immediately endeavoured to employ his army, and his treasures, for the purpose of extending his dominions. The first acts of his reign, were encroachments upon various pretexts, on several of his weaker neighbours. He seized an early opportunity of wresting Silesia from the heirs of the house of Austria. During a great part of his subsequent reign, he was engaged in continual wars to preserve that conquest. Sometimes he enjoyed the alliance of France, sometimes that of Britain. He was, at last, fully successful. Then turning himself to improve the internal œconomy of his government, he reformed the Prussian laws, and laboured solicitously to perfect the agriculture of his dominions. Various opportunities afterwards occurred, to enable him to enlarge his territory, particularly by the partition of Poland: and he did not slight them. He died at a good old age. His nephew was his successor. The unfortunate expedition into France, the subsequent desertion of the alliance, the last partition of Poland, a friendship with republican France, characterized his reign. He died. But the same system of policy seems still to govern the conduct of the Prussian court. The young king is eminently popular among his subjects. With the French he has hitherto maintained a steady alliance; refusing, with decisive firmness, to aid their enemies in the renewal of the war in Germany, or in the attempt upon Holland. The mission of Mr. Grenville from the British court was supposed to be intended, for the purpose of trying, by every winning solicitation, to engage the King of Prussia to imitate the example of the Emperor of Russia. The Russian Emperor demanded the alliance of Prussia against France in a more indignant manner. He was refused with resentment. He recalled his ambassador from the Prussian court. The Prussian monarch maintained his first purpose. The exiled Stadtholder of Holland is sent to the King of Prussia; and the father of the present king took

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a warm interest in the support of the rights of the Stadtholder's family. If any thing could engage the young monarch to renew the war with France, it might be a desire to restore the Stadtholder; but, he holds at present the balance between France and the powers united against it. He sees neutrality enrich his subjects. He endeavours in peace to strengthen himself alike against Austria, France, and Russia. He leaves Britain and Russia to invade Holland without his assistance.

SECTION XXXII.

Germany, Bohemia, Hungary, &c.

Germany is bounded by the German Ocean, Denmark, and the Baltic on the north; by Poland, Hungary, and Bohemia on the east; by Swisserland and the Alps on the south; and by the dominions of France, and the Low Countries on the west: extending from forty-five deg. four min. to fifty-four deg. forty min. north latitude, and from six to nineteen deg. forty-five min. east longitude. This country is the seat of a great empire, and of many dependent sovereignties of different denominations, and under various modifications of government; its affairs are blended with those of the other nations of Europe, whose Germanic territories are necessarily exhibited in its divisions.

270. *Divisions.*] In territories so numerous, and possessions so minute, where the dominions of a prince are sometimes of less extent than an English manor, to attempt a particular description of each would be tedious and perplexing; and the divisions laid down, even by modern writers, are often uncertain and contradictory. Those most generally received, and their rise, are as follows: the German empire was formerly divided into two grand parts, the upper and the lower; but the Emperor Maximilian, grandfather and predecessor of Charles V. divided it into ten great circles; and this mode of division was confirmed by the diet of Nuremberg, in 1552. However, as the circle of Burgundy, or the seventeen provinces of the Low Countries, has been detached from the empire, the circles of Germany are only nine; three lie in the north, three in the middle, and three in the south.

The circles are subdivided into principalities, duchies, marquisesates, electorates, palatinates, counties, baronies, abbies, bishoprics, &c.

Circles.

Chief Towns.

UPPER SAXONY.

Stetin, Stralsund, Stendel, Berlin, Potsdam, Francfort, Custrin, Wittenberg, Bautzen, Gorlitz, Dresden, Missein, Erfurt, Meiningen, Zeitz, Altenburg, Weimar, Gotha, Eislebnach, Saalfeld, Schwartzburgh, Belchingen, Mansfield, Hall, Naumberg, Stolberg, Northhausen, Dessau, Zerbst, Bernberg, Kothen, Hall, Plowen, Merseburg.

LOWER SAXONY.

Keil, Gottorp, Meldorp, Gluckstadt. Hamburg, Lubeck, Lawenburg, Brunswick, Wolfenbuttel, Rheinstein, Blachenberg, Hanover, Grubbenhagen, Gottingen, Lunenburg, Zell, Bremen, Verden, Swerin, Gustrow, Hildesheim, Magdeburg, Halberstadt.

WESTPHALIA.

Embsen, Oldenburg, Delmonhurst, Hoyer, Diepholt, Munster, Paderborn, Osnaburgh, Lippe, Minden, Ravensburg, Arensburg, Tecklenburg, Ritberg, Schawenburg, Cleef, Dusseldorf, Juliers, Aix, Ham, Liege, Huy, Bentheim, Steinfurt.

UPPER RHINE.

Cassel, Marburg, Darmstadt, Homberg, Rhinefeld, Wonfeld, Dillenburg, Diets, Kerberg, Siegen, Idstein, Wisbaden, Bielfeld, Otweiler, Ufingen, Frankfort, Erpach, Spire, Deux Ponts, Catzenelbogen, Waldec, Solms, Hanau, Eysenberg, Sayn Wied, Wittgenstein, Hatzfeld, Westerberg, Fuld, Hirschfeld.

LOWER RHINE.

Heidelberg, Philipsburg, Mannheim, Frankendal, Cologne, Bonn, Mentz, Aschaffenburg, Trier, Worms, Simmeren, Rhinegravestein, Meurs, Veldents, Creutznach, Leymingin.

FRANCONIA.

Wurzburg, Bamberg, Aichstadt, Cullenbach, Onspach, Henneburg, Coburg, Hildburghausen, Nuremberg, Mergentheim, Reineck, Bareith, Papenheim, Wertheim, Cassel, Schwartzburg, Holack.

AUSTRIA.

Vienna, Graz, Cilley, Clagenfurt, Lavemund, Laubach, Zerknitz, Trieste, St. Veits, Goritz, Inspruck, Brixen, Trent.

BAVARIA.

Munich, Landshut, Ingolstadt, Donawart, Ratibon, Amberg, Saltzback, Frießengen, Passau, Newburg, Saltzburg, Hallen.

SWABIA.

Stuttgart, Tubingen, Hailbron, Dourlach, Weiler, Augsburg, Hockstet, Bleinheim, Ulm, Constance, Mindelheim, Furstemburg, Hohenzollern, Oeting, Koningseck, Gemund, Waldburg, Limpurg, Kempten, Buchaw, Lindau, Nordlingen, Memminghem, Rotwell, Rhinefeld Lauffenberg, Burgaw, Friburg, Brisac.

271. *Climate.*] Though Germany, taken in a literal sense, may be said to enjoy a temperate air, and an agreeable climate; with respect to the degrees of it's warmth, purity, and salubrity, they are of course various, according to the situation of the country, to the north or to the south, and to or from the sea. The champaign tracts have a different air from that of the mountainous; and in a deep, marshy, and moist soil, it varies from that of elevated, dry, and sandy situations. Hence fruits and grain arrive at an earlier maturity, and come to greater perfection in some places than in others.

272. *Vegetables.*] The cultivated parts of Germany are remarkable for their fertility; for though these form only a small part of the country, yet provisions are cheaper, and in greater plenty, than in most other countries in Europe. The Germans likewise cultivate hops, anise, cummin, flax, hemp, tobacco, madder, woad, saffron, and the utmost variety of pot-herbs, fallads, and roots. The most valuable fruits are apples, pears, cherries, plums, chefnuts, almonds, olives, medlars, figs, peaches, apricots, oranges, lemons, citrons, grapes, nut-tilberts, walnuts, and almost every other species common to the French or Italian climates. The Rhenish and Moselle wines are celebrated over all Europe for their peculiar brightness, as well as for their detensive quality, which renders them more beneficial in some disorders than any other medicinal aid.

273. *Animals.*] The domestic animals of Germany are the same as in other European countries, but perhaps more numerous than in any other. The wild beasts are chiefly deer, (of which there are several or eight different species) boars, hares, and rabbits; and in some places, bears, wolves, lynxes, foxes, wild-cats, badgers, martins, chamois, wild-goats, &c.

Of most species of tame fowl, Germany contains very great abundance; and among the wild inhabitants of the air, common to this climate, we may enumerate swans, bustards, pheasants, wood-cocks, partridges, grouse, snipes, larks, field-fares, ortolans, quails, wild-geese, ducks, spoon-bills, storks, falcons, herons, hawks, and singing-birds. And their rivers and lakes abound with various kinds of fish.

274. *Fossils, Baths, and Mineral Waters.*] Mines of silver, copper, lead, iron, quicksilver, salts, sulphur, nitre, and vitriol, are found in many parts of Germany, especially in the circle of Austria. Coal-pits are disseminated over almost every circle. Here are carbuncles, amethysts, jasper, sapphire, agates, turquois stones, and the finest rubies; and also quarries of marble, slate, chalk, ochre, alum, and amber.

Germany is celebrated for it's mineral springs and baths; the most remarkable are those of Aix-la-Chapelle, Spa, Pyrmont, Embs, Wildbad, Schwalbach, Wildungen, and Brakel; the last of which possess a strength, which renders them capable of intoxication, for which reason they are inclosed and guarded from abuse.

275. *Mountains, Forests, Rivers, Lakes.*] Germany contains many internal mountains; but the principal ridges serve as external boundaries. Bohemia is surrounded with hills; Silesia is separated from those called Riesengebirge; and a still more considerable range divides

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Silesia and Moravia. The Austrian circle is extremely mountainous; the upper palatinate, Franconia and Suabia likewise contain many hilly tracts; and, indeed, almost every circle contains either single mountains, or continuous ranges. Germany, however, in general contains many plains of immense extent.

This country was formerly very woody, and there are still large forests remaining; but that memorable one, the Hercynian forest, which, in the time of Cæsar, was nine days journey in length, and six in breadth, is now divided into smaller woods, which go by particular names, and in many places it is quite destroyed.

The principal rivers of Germany are the Danube, the Rhine, the Elbe, the Oder, the Weser, the Moselle, the Spree, the Penne, the Mein, and the Saar. The Danube, famous for its cataracts and whirlpools, is so exceedingly broad from Vienna to Belgrade, that ships of war have frequently engaged on it.

The most capital German lakes, are those of Constance and Bregentz, Chiemsee, or the lake of Bavaria, and the Zecknitzer-see in the duchy of Carniola.

276. *Manufactures, Commerce.*] With respect to manufactures and mechanics; the Germans at present make velvets, beautiful silks, rich silk, cotton and woollen stuffs, linen, fustian, ribands, lace, embroidered work, tapestry, paper, &c. They are very expert in leather dressing, printing, and dying; in fabricating every kind of metal works, both massive and minute, few nations can equal them; nor are they less celebrated for their performances in glass, cut and polished, lacquered ware and porcelain. Augsburgh is famous for its productions in silver, and Nuremburgh for its variety of ingenious and elegant wares in wood, ivory, metal, stone, and glass.

The revocation of the edict of Nantes, by Lewis XIV. which obliged the French protestants to take shelter in foreign countries, proved of the utmost advantage to the German manufactures; before that period, those of velvets, silks, and stuffs, were in the rudest state, but they have since been brought to the greatest neatness and perfection; persecution has often, in this way, defeated its own intention.

In point of commerce, Germany derives vast advantages from its situation; lying in the centre of Europe, possessing an extensive sea-coast, and being intersected by a number of navigable rivers, it can with the utmost facility export the superfluities of its home commodities and manufactures, and receive those of foreign countries.

The imports of Germany bear but a small proportion to the exports; so that the balance of trade may safely be concluded to be vastly in their favour; yet the Germans are not so much given to commerce as some of their neighbours; and, except the Asiatic company of Embden, established by the King of Prussia, there is not any capital commercial society in the whole empire. The towns of Hamburgh, Lubeck, and Bremen, still retain the name of Hans Towns, and have a league actually in force between them, under the sanction of which they concluded treaties of commerce with foreign powers; but this is but a shadow of that grand confederacy for the promotion of trade and navigation, which was entered into about the middle of the thirteenth century, by many towns in Germany, and in other countries

countries bordering on the German Ocean and Baltic, and obtained the name of the Hanseatic League. This confederacy, after subsisting upwards of two centuries with great commercial advantage, from various concurring reasons, which proved detrimental to trade, ceased in it's general cogency and effect.

277. *Curiosities, natural and artificial.*] Every court of Germany has a cabinet of curiosities, artificial and natural, ancient and modern; the various antiquities, the coins, the manuscripts, and the prodigious libraries which the literati of this country have collected together, and the many reliques, whether real or imaginary, which superstition has treasured up, and regards with a veneration greater than that of the virtuosi, or rather curiosi, for their most precious remains of antiquity may all be reckoned among the rarities of this country; their bridges also; their gothic palaces, cathedrals, castles, and especially their town houses, are very curious; and their natural curiosities, as petrifications and a variety of curious fossils; caves, into one of which they have proceeded twenty miles, without discovering it's end; and from others of which water gushes out with great noise and impetuosity when it thunders; and mineral springs and baths are unnumbered.

278. *Schools and learned Men.*] The universities in this empire are thirty-six in number, of which seventeen are Protestant, seventeen Romish, and two mixed. Besides these there are a great number of colleges, gymnasia, pedagogies, Latin schools, and several academies and societies for promoting the study of natural philosophy, the belles lettres, antiquities, &c.; among the latter of which are, the imperial Leopoldine Academy of the *naturæ curiosæ*; and the academies of arts and sciences at Vienna, Berlin, Gottingen, Erfurth, Leipzig, and Duisburg. At Dresden and Nuremberg are academies for painting, and at Augsburg is the imperial Franciscan academy of fine arts.

Every prince, baron, and man in affluent circumstances, in Germany, is either a chemist or natural philosopher. Among their learned men, Stahl, Swieten, Storck, and Hoffman, have been accounted eminent in physic: Ruvinus and Dillenius in botany; Heister in anatomy and surgery; Newman, Jewmerman, Patt, and Margff in chemistry; and Leibnitz, Wolfius, Puffendorf, Thomafius, Otto Guericke, and Kepler in philosophy. Germany has also produced good geographers, historians, political writers, and poets.

279. *Profession and Language.*] The resolutions of several conventions have been, that no other religion but the Romish, Lutheran, and Calvinist should be introduced or tolerated in the holy Roman empire or Germany; notwithstanding which, many other societies are in different parts allowed the free exercise of their religion; and the Jews in particular, are tolerated in the imperial cities, and many other parts.

The German language is a dialect of the Teutonic, without the least affinity to the Celtic, and is called the High Dutch, being the mother tongue of the whole empire; it abounds with consonants, is extremely harsh to the ear, and varies so much in it's dialect, that the people of one province seldom understand those of another. Their writers have

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recently improved it to a sweetness, a richness, and a happy analogy, which they did not before possess. Latin is spoken very fluently by those in higher ranks; and in most of the courts they speak French, though that of Vienna, and some others, prefer the Italian. In this fine city, the capital of the empire, a very great variety of inhabitants are to be met with, as Greeks, Transylvanians, Slavonians, Turks, Tartars, Hungarians, Croats, Poles, Spaniards, French, Italians, &c. in their particular habits.

280. *Hungary, Bohemia, &c.*] The kingdoms of Hungary and Bohemia, and the province of Transylvania, Slavonia, Croatia, and Morlachia, may also be considered as a part of the German empire, having all, by treaty or conquest, been brought under the dominion of the house of Austria.

The national profession or political establishment of worship in these countries is that of Rome; but both Protestants and Greeks are very numerous.

Their natural history, curiosities, manufactures, and commerce, are much the same with those of Germany. The inhabitants are composed of a variety of people differing in name, language, and manners; and this diversity has been thus accounted for: the enthusiastic spirit for liberty, which so long opposed the Roman arms, made it's last stand here, against those conquerors of the world, who by degrees drove the remains of the different vanquished nations into these quarters; the thickness of the woods, the rapidity of the rivers, and the natural strength of the country, favoured their resistance; and their descendants still retain the most legible characters of those unsubmitting heroes from whom they sprung. Without regarding the arrangements made by the ambition of the sovereigns of Europe, they seem to acquiesce under that government with most pleasure, which allows them the greatest latitude of privilege and ancient freedom; however their attachment seems greatest to the house of Austria, but the Austrians or Germans did not even know the names of their various tribes till they learnt them from their various military muster-rolls, when they poured their troops into the field in support of the pragmatic sanction.

The pragmatic sanction, a term which often occurs in the modern German history, is a provision that was made by the emperor, Charles VI. to preserve the indivisibility of the Austrian dominions in the person of the next descendant of the last possessor, whether male or female; this provision has frequently been disputed by other branches of the house of Austria, and France and Spain have opposed it's effect; but hitherto all attempts to abrogate it have proved ineffectual, and the pragmatic sanction is strongly guaranteed by almost all the powers in Europe.

The Romans also in their turn made a stand in this quarter, before the Goths and Vandals of the north entirely overpowered them, and among the variety of dialects, which however seem to be principally Slavonic, some of the descendants of the legionary forces are still to be distinguished in the interior parts by their use of the Latin tongue; the Latin, however, is not confined to these, but is pretty generally under-

derstood, together with the German or high Dutch, throughout the Austrian dominions.

Hungary lies between forty-five and forty-nine deg. north latitude, and between sixteen and twenty-three deg. east longitude. It is bounded on the north by Poland; on the east by Transylvania and Wallachia; on the south by Slavonia; and on the west by Austria and Moravia; its principal divisions are,

Divisions.

Chief Towns.

UPPER HUNGARY.	{	Pressburg, Newhausel, Leopoldstadt, Chrenmits, Schemnits, Esperies, Caschaw, Tokay, Zotmar, Unguar, Mongats, Waradin Great, Segedin, Agria, Pest.
LOWER HUNGARY.	{	Buda, Gran, Comorra, Raab, Altenburg, Weissenburg, Kanissha, Five Churches.

Its universities, if they deserve the name, are those of Firnam, Buda, Raab, and Cascham.

Bohemia lies between the parallels of forty-eight and fifty two deg. north latitude, and between twelve and nineteen deg. east longitude. It is bounded on the north by Saxony and Brandenburg; on the east by Poland and Hungary; on the south by Austria and Bavaria; and on the west by the palatinate of Bavaria. It is divided into Bohemia Proper, Silesia, and Moravia.

Bohemia Proper, mostly subject to the house of Austria, contains the towns of Prague, in which is an university, Koningsgratz, Glatz, subject to the King of Prussia, and Egra.

Silesia, mostly subject to Prussia, contains Breslau, Glogaw, Crossen, and Jagendorf; Tropaw and Teschen, both subject to Austria.

Moravia, entirely subject to the house of Austria, contains Olmutz, Brin, and Iгла.

Transylvania is bounded on the north by Upper Hungary and Poland; on the south by Wallachia; on the east by Moldavia and Morlachia; and on the west by Upper and Lower Hungary. It lies between forty-five and forty-eight deg. north latitude, and between twenty-two and twenty five deg. east longitude. It is about one hundred and eighty miles in length, and one hundred and twenty in breadth,

Slavonia is bounded on the north by the river Drave; on the south by Stiria in Austria; on the east by the Danube; and on the west by the Save. It lies between forty-five and forty-seven deg. north latitude, and between sixteen and twenty-two deg. east longitude, being two hundred miles in length and sixty in breadth.

Croatia lies between forty-four and forty-seven deg. north latitude, and between fifteen and seventeen deg. east longitude. It is bounded on the north by the river Save; on the south by Morlachia; on the east by Bosnia; and on the west by the duchy of Carniola. It is about eighty miles in length and seventy in breadth.

Morlachia lies between forty-four and forty-six deg. north latitude, and between sixteen and seventeen deg. east longitude; is about one hundred miles in length and thirty in breadth. On the north it is

bounded

bounded by Carniola and Croatia; on the south by Dalmatia; on the east by Bosnia, and on the west by the Gulph of Venice.

281. *History.*] Germany was never wholly conquered by the Romans. Out of it descended the Franks, the Saxons, and many of the other tribes which made themselves masters of the western Roman empire. Charlemagne, sovereign of France, first combined, by conquest, the wide extent of Germany and Italy into one new empire, with his French dominions. When his empire was parted among his successors, Germany became the possession of one of them who was enabled to arrogate the title of Emperor. The disjointed nature of the feudal government, and the incongruous mixture of licentious liberty with tyranny, placed the vassals of the imperial crown in a condition which, though precarious and uncertain, was, in many things, almost equal to independency. Circumstances occurred to render the succession to the imperial crown elective; and from this time, it's vassals acquired extraordinary new advantages. The electors generally endeavoured to chuse a prince, whose weakness, before his elevation, might render him unable fully to vindicate the authorities of his crown. The free cities, the principalities, the dukes, the counties, the bordering kingdoms, became in this period, great, independent, licentious. Various circumstances, however, had, at length, made the imperial crown nearly hereditary in the house of Austria. Charles V. the heir of that house, was exalted to the imperial throne, though master of immense wealth, and of a wide extent of other dominions. Religious dissensions afforded him occasion to make himself almost absolute master of the liberties of his imperial vassals. German freedom was saved by the artful management of Maurice of Saxony. The successors of Charles were still powerful. The kingdoms of Bohemia and Hungary, in addition to Austria, formed to them a mass of hereditary dominion, which rendered their ambition still formidable, especially to the protestant subjects of the empire. New wars arose on the pretence of religion. Sweden and France interposing, prevented the excessive aggrandizement of the imperial branch of the house of Austria; and, at length, by the peace of Westphalia, in 1648, confirmed the ancient liberties of Germany, and gave full security to the protestant religion. The house of Austria, in which the imperial crown was now, in a great measure, hereditary, found again scope for their ambition in the hopes of the succession to the crown of Spain. France contended against them, and after long negociations and wars, at last prevailed. But the house of Austria obtained a share in the spoils of Spain, in the dominions of Italy, and of the Netherlands, by which she was, perhaps, more aggrandized than if the Spanish crown had been actually wrested from France. The failure of the male line of that house in the person of Charles VI. again weakened it's greatness, by the concessions which it rendered necessary, in order to support a female on the throne. It was at this season that the Prussian greatness arose into competition with the imperial power in Germany. The necessity of maintaining the balance of power, made the nations interpose, to support Maria-Theresa on the imperial throne. The imperial sovereignty, at length, however, been, in a great degree, lost; and the house of

Austria,

Austria, though retaining the imperial crown, is to be considered merely as the sovereign of it's great hereditary dominions. The ill-omened reforms of the Emperor Joseph, the rivalry with Prussia, the unsuccessful invasion of France, the glorious struggle which Austria now victoriously maintains with France, are sufficiently known.

The electors, dukes of Saxony, have acted an important part in the political transactions of the German empire and the surrounding nations; have been occasionally kings of Poland; have cultivated the fine arts, with liberal and successful patronage; and have occasionally aspired to a greatness above what they have yet attained.

The electors, dukes of Bavaria, were long the rivals of the Austrian greatness.

The high fortune of the electors of Hanover, sovereigns of the British empire, has exalted them above the pride of the imperial crown.

A part of the German principalities being ecclesiastical, have been somewhat less afflicted by the miseries of war, than the rest.

The free towns first introduced industry, ingenious arts, and opulence into the German dominions. Many of them still continue to flourish in the enjoyment of their ancient immunities. Others have been subjugated by the princes; others have fallen into decay, since the prince learned, that, to encourage industry and commerce in the towns subject to them, was the best means to enrich themselves.

SECTION XXXIII.

Switzerland.

The thirteen united cantons of Switzerland, the Helvetia of antiquity, is bounded on the north by Swabia; by the lake Constance, Tirol, and Trent on the east; by Italy on the south, and by France on the west; extending from forty-five to forty-eight deg. north latitude, and from six to eleven deg. east longitude.

282. *Divisions.*] Seven of the cantons are Romish, and six Protestant.

<i>Cantons.</i>	<i>Allies.</i>	<i>Subjects.</i>
		COUNTIES.
West. { Bern, Protest,	S. E. { Grison Leagues.	Sargans.
Fribourg, Rom.		Turgow.
Basil, P.		Rotweil.
Lucern, R.		BAILLIAGES.
Soloturn, R.		Lugano.
East. { Schaffhausen, P. E.	St. Gall Rep.	Lucarno.
Zurick, P.		Bellents.
Appenzel, P. S. W.		TOWNS.
	Valbis	M. Zug

M.	{	Zug, R.	N. W.	Neufchatel.	Baden.
		Swiss, R.	W.	Geneva.	Bremgarten.
		Glaris, P.	N.	Mulhausen.	Mellengen.
		Uri, R.			Raperfwelt.
		Underwald, R.			Frawenfeldt.

283, *Climate, Productions, &c.*] Though this country lies in a southern part of Europe, yet being situated among the Alps, the highest mountains of Europe, the air is much more severe than in the higher latitudes. The frosts in winter are intensely sharp, and many of the hills are covered with perpetual snow. In summer the inequality of the soil renders the same province unequal to its seasons, and it is by no means uncommon for the inhabitants of one side of a mountain to be reaping while those on the other are sowing. The valleys, however, are warm, fertile, and highly cultivated; but being subject to floods, and various accidents, which frequently destroy the expected produce of the year, the natives have adopted the prudent precaution of erecting granaries to supply the failure of their crops; and the effects of their persevering industry are astonishing. They drive the plough along the sides of precipices which a horse, unaccustomed to the country, would be incapable of ascending without danger, and convert the rugged rock and the sterile mountain into pleasant vineyards and fruitful pastures. A variety of pot-herbs, and other esculent plants are found in this country; and some of the mountains are covered with forests, which afford excellent timber, and a thousand aromatic or medicinal herbs.

The cattle and sheep in Swisserland are very numerous, and they have an exceeding good breed of horses. On the mountains are bears and wolves, white and yellow foxes, hares which turn white in winter, the chamois goat, marmosets, and the Alpine mice, which are in reality a species of badger.

The mountains in Swisserland abound in mines of iron, marble of various colours, crystal, spar, common gypsum, slate, sandstone, chalk, mundic, terra sigillata, sulphur, saltpetre, rock-salt, and pit-coal.

Mineral springs are numerous in this country; but the most celebrated baths are those at Baden, which, from the antiquities there found, as well as from the testimony of Tacitus, appear to have been known to the ancients.

284. *Mountains, Rivers, and Lakes.*] The mountains of Swisserland are many and very stupendous. They divide almost all the cantons from each other, and the whole country is separated from Italy by a long chain of them, called the Alps.

The principal rivers in this country are the Rhine, the Aar, the Rufs, the Inn, the Rhone, the Thur and the Oglio; the sand of some of these is said to yield gold dust.

The lakes are numerous, there being scarce a mountain without one on the top of it; but the principal of those are Geneva, Constance, Zurich, Biende, Thun, Neufchatel, and Lucern, all highest in summer by the melting of the snow.

285. *Commerce and Manufactures.*] The trade of Swisserland is greatly

greatly facilitated and promoted by it's rivers and lakes, and by it's droves of pack-horses, for the conveyance of goods over the mountains where no carriages can pass. The articles in which it consists are fat cattle, sheep, horses, cheese, butter, hides, skins, and the productions of their own manufacture, the principal of which are silks of various kinds, gold and silver brocades, several sorts of linen, lace, thread, cotton, neckcloths, a variety of woollen manufactures, stuffs, silk and worsted stockings, gloves, handkerchiefs, hats, paper, leather of all sorts, porcelain, earthenware, toys, watches, clocks, and other hardwares. Their imports are chiefly grain and salt.

286. *Curiosities natural and artificial.*] The natural curiosities of this country are almost innumerable, but the most extraordinary are the Glaciers, or valleys of ice, which has in some places accumulated to a prodigious height. The heat of the sun, in summer, cracks the ice with a noise like that of thunder, and in winter the expansion of the ice in the cavities of the rocks splits them asunder with similar concussions and reports, rending, scarping, and breaking the precipices in such picturesque and curious forms, as to give them the appearance of prodigious piles of ruins.

The monuments of antiquity near the baths of Baden, the ruins of Cæsar's walls, and their extraordinary bridges (their time of foundation uncertain) are ancient curiosities of art; and many of the modern public buildings are curious, particularly the college of the Jesuits at Friburg; and the public libraries and cabinets contain antiques, valuable manuscripts, and curiosities of every denomination.

Indeed the whole aspect of this romantic country is naturally curious, and the cultivated improvements of the natives mounted up to the summits of the hills, and their cloud-reaching roads carried over the mountains with uncommon labour and perseverance, now insinuated through tremendous rocky chasms, and now, as it were, hung aloft in air on the dizzy brink of frightful precipices, may fill us with astonishment, while those beautiful, little solitudes, the curious hermitages of this country, may surprise with as lively, though less amazing, emotions; of these the most curious lies about two leagues from Friburg, among woods and rocks: it consists of a chapel, oratory, steeple, hall, refectory, kitchen, rooms, stairs, cellar, and other conveniences, all hewn out of a rock, even to the chimney and steeple, though the latter is fifty-four feet in height. All this was the twenty-five years labour of a hermit. But this is not all; with inexpressible labour he has levelled the side of the rock, brought earth from the neighbouring parts, and formed a delightful garden; and, that nothing might be wanting to render his retreat perfect, the hermit observing drops of water distil from the several parts of the rock, followed the veins, by which means he made a reservoir sufficient to water his garden, and allay his thirst.

287. *Learning, Schools, Language.*] The sciences are cultivated in this country with assiduity and success. Calvin, whose name is so well known, instituted laws for the city of Geneva, and Rousseau, admired as an orator, a philosopher, a novellist, a musician, and a politician, was a native of Geneva. Several of the Swiss have distinguished themselves

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themselves in the fine arts, and particularly in paintings, sculpture, and engraving.

Swisserland contains many excellent foundations for the instruction of youth, especially among the Protestant cantons, who, besides their gymnasia and schools in various places, have academies at Zurich, Bern, Lausanne and Geneva. The Romish cantons have likewise several gymnasia, and a college at Lausanne. But of all other literary institutions, the university of Basil, founded in 1459, is most celebrated, being adorned with a very curious physic garden, containing the choicest exotics; and adjoining to a valuable library is a museum, extremely well furnished with natural and artificial curiosities, and a variety of medals and paintings.

Several languages are spoken in Swisserland, but the most common is the German, in which all their state and public transactions are carried on. On the borders of France and Italy the languages of both these countries are adopted, but neither of these borrowed tongues is spoken with purity or elegance.

288. *History, Government.*] The Swiss are descended from those mountain-tribes, by whom Julius Cæsar was opposed in his first entrance into Gaul. They followed the fate of the surrounding nations, and, after being long the subjects of the Roman empire, were among the Barbarians who triumphed in it's overthrow. They became subjects of the empire of Charlemagne. They were, at last, provoked to rebellion, and to aspire to independency, by the important sway of the house of Austria. Only one or two of the small cantons broke forth, at first, into this rebellion. Their patriot-virtue, their successes, and the shame of their enemies, enticed the rest to join them. In 1315, the Swiss states confederated in a perpetual league. France sought their alliance; with Austria they were long in unappeasable hostility. Charles Duke of Burgundy in opposing them; they became famous as the best mercenary soldiers in Europe. The Protestant reformation, founded among them, and after dividing in wars, obtained at last a partial establishment. They have long avoided war; content to serve as mercenaries in foreign armies, especially in those of France. Agriculture, the mechanical arts, literature, and commerce, have gradually been the favourite objects of Swiss culture. Their country, visited by all the other nations of Europe, on account of it's wild, romantic scenery, has thus afforded them an opportunity for exporting the products of their industry, which they might, otherwise, not have possessed. The Swiss have also wandered abroad as artists, as well as in the condition of servants and soldiers, more than almost any other people.

Geneva was a confederated city, not a member of the Swiss republic. It was long famous for it's reformed and presbyterian religion, it's manufactures, it's commerce, it's eminent perfection in all the arts of France.

The Grisons were, in a like manner, confederates, not subjects of the Swiss.

The General Diet of the Swiss republic consisted of two deputies from each canton, with a deputy from the Abbot of St. Gall, and one from each of the cities of St. Gall and Bienne. To this diet were referred

ferred matters concerning the whole confederacy. In other things, each state was left to judge and act for itself. A part of the states were, in their government, considerably aristocratic, others were democratic; some were Catholics, others Protestants.

But, all has been overturned by the French revolution. The Swiss, under the auspices of Austria, again rise to oppose the French arms. The event is uncertain. Perhaps the ancient Swiss constitutions may yet be restored.

SECTION XXXIV.

Holland.

The Netherlands lie between fifty and fifty-four deg. north latitude, and between seven and two deg. east longitude. They are bounded on the north by the German Ocean, on the east by Germany, on the west by the British Channel or German Ocean, and on the south by France and Lorrain.

Under the title of Netherlands are comprehended, in a general sense, seventeen provinces. The seven most northerly obtain the name of Holland, or the United Provinces; and the other ten are called Flanders, or the Austrian and French Netherlands.

289. *Divisions.*] The provinces of Holland and their chief towns are as follow:

<i>Provinces.</i>	<i>Chief Towns.</i>
HOLLAND.	Amsterdam, Rotterdam, Delft, Hague, Haerlem, Leyden, Dort, Williamstadt, Naerden. Gorcum, Heusdem, Saardam, Edam, Hoarn, Enchusen, Alkimaar, Monckdam, Purmerent, Briel, Helvoetsluys, Goree, Somerdyke, Burg.
ZEALAND.	Middleburg, Flushing, Terver, Rammakins, Zerricksee, Brewershaven, Tolen, Catts, Tergoes.
FRIEZLAND.	Lewarden, Dockum, Franker, Harlington, Slood.
GRONINGEN.	Groningen, Winschotten, Dam.
OVERYSSEL.	Deventer, Zwall, Coverden, Otmarsen.
GELDERLAND and ZUTPHEN.	{ Arnheim, Loo Palace, Hardewich, Nimeguen. Skenkenschan, Bommel, Zutphen, Doesburg. Groll, Gelder, Venlo, Ruremond.
UTRECHT.	Utrecht, Amersfort, Duesterdwyck.

290. *Air, Soil, Animals.*] The United Provinces lie very low, and are without mountains, or extensive forests, to diversify the scene. The air is foggy, moist, and would be very unwholesome, if not purified

crushed by the frost in winter, when the east wind usually blows for about four months, during which season their harbours are generally frozen up. The soil is by nature unfavourable to vegetation, an obstacle, which the industry of the inhabitants has in a great measure surmounted, in making canals and ditches to drain their lands, which, by this method, are rendered fit for pasture, and in many places for tillage.

Their animals are much the same with those in England. The inhabitants buy lean cattle in Denmark, and the north of Germany, which their pastures fatten to a prodigious bulk. Their horses are very large. They have a fine breed of sheep, whose wool is highly valued; and it is said that in some places they have wild boars and wolves. Storks build and hatch in their chimneys. Their other birds are the same as ours; as are, also the fishes found in their seas and rivers, though somewhat larger; but they have neither herrings nor oysters on their coasts.

291. *Rivers.*] The principal rivers in this country are the Rhine, the Vecht, the Maese, and the Scheld, which divides below Antwerp into two branches, the one called the Western, and the other the Oster Scheld. The Rhine originally ran in one channel by Utrecht and Leyden, but that being choaked up, it now, on entering Holland, forms three branches, viz. the Waal, Lech, and Iffel. These great rivers are joined in their course by a number of smaller ones, and several canals; these contribute much to the improvement of commerce, on these the people are continually passing and repassing in their track-boats, or passage boats, and in the winter, both men and women by thousands on their skates.

292. *Commerce, Manufactures.*] The United Provinces, though they produce very little in themselves, yet almost all the products and commodities of the globe may be found here, and bought nearly as cheap as in the places they were brought from; and so extremely industrious and enterprising are the Dutch, that there is scarcely a manufacture they do not carry on, or a state with which they do not trade.

293. *Curiosities.*] There are but few natural curiosities in Holland. The stadthouse at Amsterdam may be esteemed one of the artificial kind: it stands upon thirteen thousand piles driven into the ground. The outside makes a grand appearance, and the inside is at once magnificent and convenient. Several museums, containing antiquities and curiosities, are to be found in Holland, and the other provinces, particularly in the university of Leyden. But their land-making dykes are the greatest curiosity. In fact, the country may be considered as rescued from the ocean by these artificial bulwarks, and when the dykes happen to be broken down, the damage is prodigious, the place of villages and towns, plantations, and fields becoming one extensive tract of sea.

294. *Religion, Language.*] The national profession of religion in this country is the Presbyterian or Calvinism; none but people of this persuasion being admitted into any office, post, or in the government, excepting the army; nevertheless all professions and societies are tolerated.

lerated, and allowed their respective meetings and assemblies for public worship; among which are numbers of the Lutherans, Romanists, Moravians, Baptists, Quakers, and Jews.

The native language of this country is Low Dutch, a corrupted dialect of the German, and even unintelligible to those who understand the German tongue, or High Dutch; however, the people of fashion are capable of conversing in the French language, and many of them in English.

295. *Literati, Schools.*] With respect to learned men, Holland has produced Erasmus and Grotius, Boerhaave and Grævius, Burmann and Van Haaren. In the fine arts, the Dutch have chiefly distinguished themselves in painting, though they are not destitute of skillful statuaries.

They have five universities, viz. Leyden, Utrecht, Groningen, Harderwicke, and Franeken; two gymnasia, one at Amsterdam, and another at Deventer, besides an academy of sciences at Haerlem, and several famous grammar schools in different places.

296. *History, Government.*] This country was formerly part of the territories of the ancient Belgæ, who were conquered by Julius Cæsar. After this, it was successively under the Franks, its own counts, and the earls of Hainault, and the house of Burgundy. In 1534, the people, rather than submit to the bishop of Utrecht, surrendered their liberties to Charles V. who, in 1556, gave them to his son Philip II. of Spain. Being oppressed by the Spaniards, they, together with other neighbouring provinces, revolted in 1572, and at length compelled their old masters to acknowledge them an independent republic.

The revolution which emancipated the Dutch from the Spanish yoke, was not achieved without a terrible devastation of their country and a direful bloodshed of its inhabitants. France and England happily agreed to protect their freedom. The new freedom of commerce and industry, the religious toleration, the habits of parsimony and to which were introduced into their provinces, in consequence of that revolution, soon made them the seats of almost unequalled opulence. They became the favourite resort of protestantism from all Europe. They became, through various circumstances, the most adventurous and the hardiest of the merchants and navigators of Europe. Holland became for a time, perhaps more than the rival of England, at sea. During the first half of the seventeenth century, wars, foreign and intestine, harassing the rest of Europe, while the Dutch were, for the greater part of this time, in peace, contributed further to exalt their greatness. Louis XIV. of France, with impotent ambition, aspired in vain to achieve the final conquest of Holland. William III. arose, and set Holland at the head of a confederacy, whose efforts were fatally to break the power of Louis. By the war which ended in the peace of Utrecht, Holland was more enriched than any of the other contending powers. By that treaty secured to the English commercial advantages, before which the mercantile greatness of the Dutch was to sink into comparative meanness. The Dutch lost in the course of the present century almost all their patriot-passions, saving those which were kept alive by faction. They forgot all other interests but those of their commerce

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and the interests of their commerce itself were thus in part betrayed. From the origin of Dutch liberty, the institution of the office of Stadtholder had been directed to reconcile the military energies of monarchy with the freedom of a commercial republic. But the stadtholders had even struggles to acquire new powers: the republican power had laboured to humble and overthrow the stadtholdership. The rivals had alternately prevailed. At last, the arms of Prussia and the influence of Britain became necessary to support the stadtholder's power. In the year 1787, the republican faction was by this means subdued. They threw themselves into the arms of France. The French revolution has overrun Holland.

On the 19th of the first month, the leaders of the revolution of 1787, assembled at Haerlem, in the house of Citizen Lestevenon, and all the members of the clubs were invited to repair with arms to their assigned posts. This was done accordingly, all the members wearing the French national cockade. Deputies were sent by the people thus assembled, to the presiding burgomaster, Vermulen, whom they obliged to sign an order, enjoining the governor of the town not to oppose the will of the people. He, as well as all the other magistrates, were obliged to resign their places.

On the 20th, the French commissioners published a declaration, by which they ensured to the Dutch people, their full independence, and acknowledged their right to alter or correct the constitution of their country. A letter was also communicated to the people, by proclamation, written by the French General, Daendels, (one of the chiefs of the revolution of 1787, who had been banished the country), wherein he exhorted the inhabitants of the United Provinces to shake off the yoke of tyranny under which they had but too long languished; at the same time, the tree of liberty was planted in the great square, and all the inhabitants hoisted the French national cockade. Citizen Hovens, having mounted the pulpit in the great church, delivered to the people a speech on the necessity of forming a new social compact, founded on the solid basis of liberty, equality, and fraternity.

On the 22d, electors were nominated to chuse four and twenty provisional representatives of the people, who undertook to perform the municipal functions at Haerlem, during the next two months. Citizen Van Styrum was appointed mayor of the town, and Jan-Cambier, commander of the armed citizens.

On the 23d, the provisional representatives of the people of Amsterdam, at the request of the commanding French General, prohibited all insults against the Dutch troops, made prisoners of war by the French army.

The representatives of the French people arrived at the Hague, in the night, between the 24th and 25th ult. The discharge of 21 pieces of cannon announced their arrival, and they took up their abode in the palace of the Stadtholder. General Pichegru and his staff were quartered in the palace of the ancient court. On the 25th, in the morning, the representatives were complimented by a deputation from the States of Holland and West Friesland, and afterwards by some deputies of the States General.

On the 26th, several deputies from different towns of Holland assembled at the Hague, in the tavern, called the Heeren-logement, and then repaired to the Haerlem tavern, sent for Secretary Rouer, the only legal actual minister of Holland, and requested him to proceed to the Pensioner of Holland, and to order him to get ready the Assembly Room of the States of Holland, for the reception of the members of the principal towns, who considered themselves as convened for the purpose of meeting there; but that they could neither admit, to their conference, him, the pensioner, nor any member of the self-named order of nobility. The said deputies, accompanied by their tipstafs, repaired in a body to the said place, and opened their first sitting. P. Paulus was appointed president, and the Citizens Spoors, De Lange, and Van Wyngarten, secretaries, for the space of fifteen days.

The president, in his speech, complimented the members of the assembly as lawful representatives of the people; he called their attention to the ways of Divine Providence, which, in so particular a manner, had favoured the success of the friends and deliverers of the country by the severe frost, which had covered the rivers and waters with ice. He acknowledged the sovereignty of the people, and the sacred rights of man.

The first operation of the assembly consisted in assuming the title of, "Assembly of the Provisional Representatives of the People of Holland."

On the same day, the provisional representatives of the people of Amsterdam appointed a mayor; a procureur of the commune; a revolutionary committee, consisting of 11 members; a committee of general inspection, composed of 15 members, and presided by the mayor; a committee of public welfare, consisting of 8 members; a committee of justice, consisting of 9 members, all counsellors; a committee of trade and navigation, composed of 28 members; and a committee of finance, consisting of 7 members. All these arrangements are merely provisional, and only to subsist, till such time as the citizens shall be able in a lawful manner to elect their representatives, and to establish a form of government for this town.

On the 28th, the provisional representatives of the people of Amsterdam, informed the inhabitants of that town, of a decree enacted by the assembly of the representatives of the people of Holland, which, 1st, acknowledges the sovereignty of the people, and the rights of man; 2dly, abolishes the hereditary dignity of the stadtholder, as captain and admiral-general of Holland; 3dly, annuls the oath taken by the inhabitants of Holland, in favour of the self-named ancient constitution; 4thly, abolishes the council of deputies, and the chamber of accounts of Holland; 5thly, recalls the deputies of the province of Holland, at the assembly of the pretended states general; 6thly, grants the right of hunting and fishing to all the inhabitants, without exception, within the bounds of their possessions; 7thly, orders the taxes hitherto levied to be continued provisionally; 8thly, enacts that a courier be sent to the commissioners of the self-named states general at Paris, ordering them to abstain from transacting any business in the name of the province of Holland, and to consider themselves as recalled

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recalled; and lastly, prescribes that commissioners of the assembly of the provisional representatives of the people of Holland, are immediately to have a seat in the assembly of the states general.

On the same day, Citizens Lestevenon and Van Leyden read, in the sitting of the representatives of the people of Holland, a detailed account of the nature and object of that assembly, written in French, and to serve as a report to the French commissioners on that subject.

In the sitting of the 29th, the great pensioner, Van Dan Spiegel, was deprived of his place; and the great bailiff, Count Bentinck, shared the same fate. He is succeeded by Counsellor Shepron.

On the 30th, the representatives of the people of Amsterdam published an ordinance, prohibiting all the members of the ancient magistracy of the town, and all the former ministers and officers from leaving the place, without having obtained a permission in writing from the committee of inspection, under pain of being considered as suspected persons, and their property sequestrated.

The following was the first public instrument of the new order of things, and was published at the Hague, accompanied by the sound of trumpets and the ringing of bells.

*Declaration of the Rights of Man, and of a Citizen.
Liberty, Equality, Fraternity.*

“ The provisional representatives of the people of Holland, believing that they owe to their fellow-citizens, a solemn declaration of the principles, upon which their proceedings and actions depend, to all those to whom these presents shall come, or who shall hear them read, health, they make known,

“ That we are perfectly convinced, that the power which has been confided to us, reposes only on the free choice of our fellow-citizens, and that it is from this choice alone we have received it: that no supreme power resides in us; but that the proper sovereignty rests in the people, and this in such manner, that the people can confer the exercise of it on their representatives, but can never alienate it from themselves; that we are assured that the evils which this day are so heavy on this country, and the other provinces, owe principally their origin to the perverse ideas that have been presented to the people by artifice and violence; and that therefore it is required on the part of the representatives of the people, who desire to be faithful to their duty, to lay down certain and evident principles, and to fix them as the rule of their conduct; that though we thought that the final settlement of these rights ought to be the first work of a national convocation of the representatives of all the people, named to decree, and fix a form of government, we nevertheless owe to the confidence which our fellow-citizens have placed in us, to make a public and solemn recognition of the rights of man, and of a citizen, in declaring, as we recognize, and declare by these presents.

“ That all men are born with equal rights, and that these natural rights cannot be taken from them.

" That these rights are equality, liberty, safety, property, and resistance to oppression.

" That liberty is the faculty which belongs to every man, to be able to do that which does not affect the rights of other men; therefore, it's natural limitation is found in this principle, *do not to another, that which thou wouldst not wish him to do unto thee.*

" That therefore it is permitted to all and to each, to make known to others his thoughts and sentiments, be it by the way of the press, or by all other means.

" That each man has a right to serve God in such manner as he pleases, or does not please, without being forced in this regard in any way.

" That safety consists in the certainty of not being troubled by another in the exercise of his rights, nor in the peaceable possession of property legally acquired.

" That each man has the right of suffrage in the legislative assembly, of the entire society, either personally or by representation, in the choice of which he has concurred.

" That the end of all civil societies ought to be, to assure to men the peaceable enjoyment of their natural rights.

" That therefore the natural liberty of being able to do every thing which does not hurt the rights of others, ought never to suffer any obstacle, except when the end of civil society requires it.

" That such bounds to natural liberty cannot be imposed, but by the people or their representatives.

" That consequently no person can be obliged to cede, or sacrifice any part of his particular property, to the general commonwealth, unless this shall be expressly regulated by the will of the people, or their representatives, and according to a previous indemnity.

" That the law is the free and solemn expression of the general will; that it is equal for all, either to punish or to reward.

" That no person can be accused, arrested, or put in prison, but in such cases, and according to such formalities as shall be previously fixed by the law itself.

" That in case it shall be judged necessary to hold any person prisoner, no one ought to be treated more rigorously than is absolutely necessary for confining his person.

" That all men being equal, all are eligible to all posts or employments, without any other motives of preference, than those of virtues and of capacities.

" That each one has the right to concur in requiring from each functionary of public administration, an account and justification of his conduct.

" That there never can be laid the smallest restriction on the right of each citizen, to represent that which is his interest to those in whom the public authority is intrusted.

" That the sovereignty resides in the entire people, and that therefore no portion of the people can arrogate it to themselves.

" That the people have at all times a right to change their form of government, to correct it, or to chuse another.

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“ That such are the principles upon which we have believed it to be our duty to found our actions and our proceedings; and that being desirous of applying them to the order of things which had heretofore taken place, we forthwith discovered that the form of government which was confirmed in 1787, by means of the invasion of the Prussian army, and consequently by force only, was in every respect contrary thereto.

“ That the persons who heretofore composed the assembly of the *sei-disants* states of West Friesland, were never elected by their fellow-citizens to be their representatives, and that therefore this government could not subsist, as being absolutely contrary to the rights of man and of a citizen; that we also presently perceived that all hereditary dignities, such as hereditary stadtholder, captain-general, and admiral of this province, and of the equestrian order, as well as hereditary noblesse, are repugnant to the rights of man, and that they ought to be held and declared abolished, as they are declared to be abolished by these presents.

“ That we assure ourselves, that by this declaration all the extorted and illegitimate oaths on the *sei-disant* ancient constitution prescribed in 1787 and 1788, become in fact of no value; inasmuch as such an oath ought to have been precisely of some value; but to tranquillize all and each, we declare besides, in the name of the people of Holland, as it is well and expressly declared by these presents, that all citizens, who may have taken the above oath, are hereby discharged therefrom. That in the same manner the college, as the *ci-devant* deputy counselors of the southern and northern quarter were called, is entirely incompatible with these principles, not less than the division of the economical administration in regard to finance and otherwise, as well as to the chamber of accounts, as they all resulted from the government, in which there was no real representation whatever; and that consequently we have judged it to be our duty to suppress and abolish all the above-named colleges, as we now suppress and abolish them by these presents. And to re-establish conveniently and forthwith the benefit of these colleges, we have thought it our duty to establish and appoint a committee of public safety, a military committee, a committee of finance, and a committee of accounts, the whole provisionally, and only until definitive arrangements shall be made on this subject by an assembly of representatives, chosen by all the people, who shall be convoked for that purpose as speedily as possible; that besides, we have not thought it fit to attach any other title to our present assembly than that of provisional representatives of the people of Holland, without adding it to the name of West Friesland, having judged that it would be better to comprehend the entire province of Holland under that denomination.

“ We will and ordain expressly the courts of justice in this province, as well as the regency of the cities and other places situated in it, that our present publication shall be made known to the citizens of this province by the sound of trumpets and ringing of bells, or such other solemn manner as shall be judged the most convenient in each city

or place, and that it shall be also posted according to custom, and that each one shall conform himself to it precisely.

" Done at the Hague, under the small seal of the country, the 31st of January, 1795, the 1st year of Batavian liberty. (Signed)

" P. PAULUS, Vt.

" C. J. DE LANGE VAN WINGAERDE."

But, as yet, nothing but fatal mischiefs to Holland, have been the consequences of the revolution; French forces have remained to preserve the Dutch in the most abject submission to the yoke of France. The oriental possessions of the Dutch; their opulent colony at the Cape; their ships of trade; their ships of war; have become the prey of the British. Dissensions and discontents have produced various changes in their new government. Party distracts them more than ever. Their commerce is annihilated; their agriculture languishes. Much of that trade which was theirs, has been transferred to the north of Germany, to Denmark, to Sweden, even to Russia; and above all, to the ports of Britain. The events of the opening campaign of the year 1799, rendered it extremely doubtful, whether Holland might not, yet, be emancipated from the French yoke, and from democratic disorder; its ancient government restored; and the exiled Stadtholderian family re-established.

In the progress of the year 1799, circumstances, at last, conspired to invite the British to attempt an invasion of the Dutch provinces, in order to rescue them from the republican robbery of France, and to restore their ancient government. Russia lent its generous and willing aid. The British fleet easily seized that of Holland. A landing of a powerful force, British and Russian, was accomplished at the Point of Helder. In spite of every opposition, the British forces still gallantly advanced. The Russians fought with incomparable ardour. But the difficulties of the country, the inclemency of the season, and other disadvantages which had not been foreseen, and could not be provided against, disappointed the hopes of the invaders. And Holland must yet, for some time longer, be pillaged by the French.

SECTION XXXV.

Flanders.

297. *Divisions.*] Flanders has been divided among the Dutch, the Austrians, and the French. The last have now possession of the greater part of this fertile and populous country; and the division into subjected provinces is giving place to that of republican departments.

Provinces.

Chief Towns.

BRABANT. Brussels, Lovain, Vilvorden, Landen, Bois-le-Duc, Breda

SECT. XX

ANTWERP
MALINES.
LIMBURGLUXEMBOURG
NAMUR.
HAINAULTCAMBRESI
ARTOIS.

FLANDERS

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	Breda, Bergen-op-Zoom, Grave, Lillo, Steenberg.
ANTWERP.	Antwerp.
MALINES.	Mechlin.
LIMBURG.	Limburg, Maestricht, Dalem, Faquemont, or Valkenburg.
LUXEMBURG.	Luxemburg, Thionville, Montmedy.
NAMUR.	Namur, Charleroy.
HAINAULT.	Mons, Ath, Enguien, Valenciennes, Bouchain, Conde, Landrecy.
CAMBRESIS.	Cambray, Crevecoeur.
ASTOIS.	Arras, St. Omer, Aire, St. Venant, Bethune, Teroouen.
FLANDERS.	Sluys, Axel, Hulst, Sas Van Ghent, Ghent, Bruges, Ostend, Newport, Oudenard, Courtray, Dixmude, Ypres, Tournay, Menin, Lisle, Dunkirk, Douay, Mardyke, St. Amand, Gravelines.

298. *Climate, Soil, and Fossils.*] The air of Brabant, and along the maritime districts, is generally esteemed thick and insalubrious, but in the interior parts it is extremely healthful, and the seasons are more settled than in Britain. The soil is, in most parts, abundantly fertile, producing corn and fruits in great plenty, and affording excellent pasturage; and even the more sterile districts yield very plentiful crops of flax.

In the provinces of Luxemburg and Limburg are mines of iron, copper, lead, and brimstone, and quarries of several species of marble. Namur abounds in coal-pits, and a kind of fat, bituminous earth, used as fuel, with plenty of curious fossil nitre.

299. *Rivers, Canals.*] The principal rivers of Flanders are the Maese, Scheld, Sambre, Demer, Dyle, Geet, Neeth, Rupple, Sanne, Deule, Dender, Lis, and Scarpe; and the most capital canals are those of Brussels, Ostend, and Ghent.

300. *Commerce, Manufactures.*] The Austrian Netherlands, by the united aids of culture and commerce, was long the most opulent and populous spot in Europe. The most elegant manufactures were brought to all possible perfection. The cities were rich and magnificent beyond description, and the whole face of the country exhibited the most enchanting appearance. These qualities, however, exist at present but in a very inferior degree; neglected by its respective governments, and outstripped in every commercial pursuit by Holland and Great Britain, Flanders has sunk in splendor in proportion as those powers have risen. The trade of the Flemings at present consists chiefly of their own manufactures, viz. fine linens, particularly a sort made at Cambray, and from thence called cambric; delicate laces, for which Mechlin is the grand mart; and the woollen manufacture, wherein it is said, that Posterwicke alone employs five hundred looms. Oudenarde is famous for its beautiful tapestries. Flanders is remarkable for breeding black cattle, and Luxemburg abounds in corn, great part of which is sent to foreign markets.

301. *Curiosities.*] In 1607, sixteen hundred gold pieces were found at Dendermond, and proved to be a collection of ancient medals of Antoninus Pius, Aurelius, and Lucius Verus. Some Roman highways are yet entire, and ruins of temples, and other buildings are found in many parts. The other curiosities of this country consist chiefly in their public edifices, in many of which there are highly finished paintings.

302. *Language, Literati, Arts, and Schools.*] The inhabitants on the frontiers of Holland speak Dutch, as those, who reside in the provinces, subject to France, use a very bad French: the rest are a mixture between both, and their language is a different dialect of the German from that of the Dutch.

The elegant arts in this country have arrived at a greater perfection than the useful. The belles lettres, rather than philosophy, have engaged the attention of their literati; and the Flemish sculptors and painters possess a very superior degree of excellence, and form a school of themselves. The animated productions of Reubens and Vandyke are very universally admired. Flamingo, or the Flemings' models for heads, especially those of children, are thought to have never yet been equalled; and the ingenious art of weaving tapestry was long confined to the Flemings alone.

The universities of Flanders have been four, St. Omers, Douay, Tournay, and Louvain.

303. *History.*] When the United Provinces had shaken off the Spanish yoke, and Philip IV. in 1648, had expressly renounced all claim to sovereignty over them, the other ten provinces of the Low Countries, or Flanders, returned under the dominion of Spain, but with very favourable stipulations, with respect to their ancient laws and liberties. In 1714, the Netherlands fell under the government of the house of Austria, which had formerly had possession of them.

These rich and fertile countries have often been the theatre of war, and bear the marks of the horrors they have been subject to, in their numerous forts, and fortified cities. In the contests of the neighbouring nations for territorial acquisitions, the English have commonly mingled, and the country has thus been agitated, from time to time, with partial revolutions. The emperor, Charles VI. left the Austrian Netherlands to his daughter, Maria Theresa, Queen of Hungary and Bohemia, who married Francis, Grand Duke of Tuscany, afterward emperor. During the reign of their beloved empress, the Flemings were content and happy; but, soon after the suppression of the civil tumult in Holland, her son Joseph II. having projected many innovations in the constitution, both in church and state, and enforcing them with violence, an universal spirit of revolt broke out. On the part of the emperor, the insurgents were treated with insolence and contempt. The governor of Brussels issued a proclamation, intimating that no quarter should be given them, and that the villages, in which they concealed themselves, should be set on fire. The patriots, on their part, threatened banishment to such as should take part with the emperor, and all were exhorted to take up arms in defence of their country. A formidable army was soon raised, which, after

some successful skirmishes, made themselves masters of Ghent, Bruges, Tournay, Malines, and Ostend, and drove from Brussels the vaunting general of the emperor. A battle was fought before the city of Ghent, in which the patriots were victorious, though with the loss of 1000 men, besides women and children, for these were not spared by the merciless armies of the tyrant, and orders were given to plunder and destroy wherever they could obtain any booty. By the cruelties of the Imperialists, the number of the insurgents was increased; for the whole countries of Brabant, Flanders, and Maes, almost instantly declared in their favour. The patriots published a memorial for their justification, alleging, as reasons for their conduct, the many oppressive edicts with which they had been harassed since the death of the empress-queen; the unwarrantable extension of the imperial prerogative, contrary to the coronation-oath; the violence committed on the people, by forcibly entering their houses at midnight, and sending them prisoners to Vienna, to perish in a dungeon, or on the banks of the Danube. They said, that Joseph, not content with this, had openly massacred his subjects, had consigned towns and villages to the flames, and had entered into a design of exterminating people who contended only for their rights. These things, they owned, might be terrible at the time, and easily impose upon weak minds; but the natural courage of a nation, roused by repeated injuries, and animated by despair, would rise superior to those last efforts of vindictive tyranny, and render them as impotent and abortive, as they were wicked and unexampled. For all which reasons they declared themselves independent, and for ever released from the house of Austria.

In this account of the emperor of Germany, what a lamentable instance we have exhibited of the evil influence of power. It's natural tendency is to bewilder the judgment, and deprave the mind. In some of the acts of Joseph there seemed to be a disposition to promote the happiness of mankind, and had he moved only in private life, it seems probable that he would have obtained the character of a benevolent philosopher, instead of that of an overbearing tyrant.

When the emperor perceived the bad effects of his cruelty, he published proclamations of indemnity; but these were treated with the utmost contempt. The patriots made the most rapid conquests, in so much that, before the end of the year, they were masters of all the Netherlands, except Antwerp and Luxemburg.

The death of Joseph happening soon after, his brother Leopold, a man of a humane and pacific disposition, succeeded him, and, by adopting conciliatory measures, together with the interference of the Kings of Great Britain and Prussia, and the States-General of Holland, again attached the Belgic Provinces to the house of Austria, the interfering powers undertaking to guarantee the sovereignty of them to the emperor and his successors. This took place in the latter part of the year 1790; but, since that time, the combined armies of the claimant and the guarantees have been together driven out from the greater part of the Netherlands by the French.

Belgium, the name given to the conquered Austrian Netherlands,

has

has been added to the conquests of France. But, instead of giving to it's people prosperity and freedom, the French have spoiled and enslaved them. New dissensions have arisen; and revolt from the French yoke, has spread wide throughout Flanders. Confiscation, imprisonment, intestine war, executions on the scaffold, necessarily follow. How long will it be, ere mankind shall learn, that reform to be accomplished by war, must exterminate while it revolutionizes!

SECTION XXXVI.

France.

France lies between forty-two and fifty-one degrees north latitude, and between five degrees west, and eight degrees east longitude. It is bounded on the north by the Netherlands and the English Channel; on the east by Germany, Switzerland and Italy; on the south by the Mediterranean and Pyrenean mountains; and on the west by the Bay of Biscay.

The republic of France, exclusively of the countries lately obtained by conquest, is divided into 84 departments. Each department is divided into districts, and each district into cantons.

Departments.

Chief Towns.

STREIGHTS of CALAIS.	Arras, Bapaume, Montreuil, Bethune, St. Omer, Calais, Hesdin.
NORTH.	Lille, Avesnes, Le Quesnoy, Valenciennes, Cambrai, Douay, Bailleul, Gravelines, Dunkirk.
LOWER SEINE.	Rouen, Caudebec, Havre de Grace, Dieppe, Cany, Neufchatel.
SOMME.	Amiens, Abbeville, Doullens, Peronne, Mondidier.
AISNE.	Laon, Soissons, Concy, Chauny, St. Quentin, Guise.
ARDENNES.	Mezières, Sedan, Buzancy, Attigny.
CHANNEL.	Coutances, Cherbourg, Valognes, Carentan, Perriers, Avranches, Mortain.
CALVADOS.	Caen, Bayeux, Pont l'Évêque, Lisieux, Falaise, Vire.
EURE.	Evreux, Pont au de Mer, Louviers, Bernay, Verneuil.
OISE.	Beauvais, Villers, Coterets.

MARNE

*Departments**Chief Towns.*

MARNE.

Chalons, Rheims, St. Menchould, Epernay, Sézanne.

MEUSE.

Bar le Duc, Stenay, Estain, Verdun, St. Mihiel.

MOSELLE.

Metz, Longwy, Longuion, Thionville, Briey, Bouzonville, Boulay, Saar Louis, Morhange, Strasbourg, Weißenbourg, Haguenau, Saverne, Schlettstat.

FINISTERRE.

Brest, Lefneven, Morlaix, Chateaulin. Quimper.

NORTH COAST.

St. Brieux, Pontriex, Guingamp, Dinan, Ros-ternen, Loudaec.

ISLE AND VILAINE. Rennes, Bain, Vitre, Dol.

MAYENNE.

Laval, Laffay, Vilaine, Ernée, S. Sufanne, Chateau-Gontier.

ORNE.

Alençon, Argentau, Domfront, Sees.

ÈRE AND LOIRE.

Chartres, Chateaufneuf, Chateaudun.

SEINE AND OISE.

Versailles, St. Germain, Raimbouillet, Etampes, Pontoise, Mante.

PARIS.

PARIS, lat. 48. 50. N. lon. 2. 25. E.

SEINE AND MARNE.

Melun, Colomiers, Rosoy.

AUBE.

Troyes, Nogent, Arcis, Bar-sur-Aube, Bar-sur-Seine.

UPPER MARNE.

Chaumont, Vassy, Joinville, Langres.

MEURTE.

Nancy, Sarbourg, Vic, Luneville, Vezelize, Grondrecourt.

VOSGES.

Epinal, St. Diez, Neufchateau, La Marche, Remiremont.

UPPER RHINE.

Colmar, Belfort, Altkirch.

MORBIHAN.

Vannes, La Faoutte, Joffelin, Pontivy, Auray, L'Orient, Rochefort.

LOWER LOIRE.

Nantes, Clifton, Chateau-Briant.

MAYENNE & LOIRE.

Angers, Segre, Beaupreau, Chollet.

SARTE.

Le Mans, Sille, St. Calais, La Fleche, Frenay, Le Ferte.

LOIRE AND CHER.

Blois, Vendome, Montrichard.

LOIRET.

Orleans, Pethiviers, Neuville, Gien.

YONNE.

Auxerre, Sens, Joigny, St. Fargeau, Avallon.

CÔTE D'OR.

Dijon, Chatillon-sur-Seine, Is-sur-Thil, Beaune.

UPPER SOANNE.

Vesoul, Jussey, Gray.

DOUBS.

Besançon, St. Hypolite, Quingey.

VENDEE.

Fontenai-compte, Montaigu, Chalons, Luçon, La Roche.

TWO SEVRES.

Niort, Thouars, Bessuire, St. Maixent, Melle,

VIENNE.

Poitiers, Loudun, Lusignan, Montmorillon, Civroy.

INDRE AND LOIRE.

Tours, Amboise, Chinon.

INDRE.

Chateauroux, Chatillon, Argenton, La Chatre.

CHER.

Bourges, Aubigny, Henrichmont, Sancoin, St. Amand.

NIEVRE.

*Departments.**Chief Towns.*

NIEVRE.

Nevers, Cosny, Lorme, Chateau-Chinon, Decize.

SOANNE AND LOIRE.

Macon, Autun, Chalons, Louhons, Charolles, Semur, Cluny.

JURA.

Dole, Lons, Salins, Poligny, Arbois, St. Claude.

LOWER CHARENTE.

Santes, La Rochelle, Rochfort, Pons.

CHARENTE.

Angouleme, Coneolens, Ruffec, La Rochefoucault, Barbezieux.

UPPER VIENNE.

Limoges, Le Dorat, Bellac, St. Leonard.

CREUZE.

Gueret, Chambon, Felletin.

ALLIER.

Moulins, Mount Lucon, Le Donjon, Cusset.

RHONE AND LOIRE.

Lyons, Roanne, Villefranche, Montbrison, St. Etienne.

AIN.

Bourg, Ambereaux, Belley, Gex.

GIRONDE.

Bordeaux, Leparre, Blaye, Bourg, Libourne, Cadulac, Bazas.

DORDOGNE.

Perigueux, Nontron, Exideuil, Riberae, Terrasson, Montpont, Sarlat, Montpazier.

CORREZE.

Tulle, Ussel, Uzerches, Brive.

PUY DE DOME.

Clermont, Riom, Issoire, Montaigu.

UPPER LOIRE.

Le Puy, Brioude, Yssengaux.

ISERE.

Grenoble, Bourgoin, Vienne.

LANDES.

Marfan, Roquefort, Tartas, St. Sever, Aire, Dax.

LOT AND GARONNE.

Agen, Marmande, Tonneins, Nerac.

LOT.

Cahors, St. Cere, Gourdon, Figeac, Lauzerte, Moissac.

CANTAL.

St. Fleur, Salers, Aurillac.

LOZERE.

Mende, St. Chely, Marvejols, Florac.

ARDECHE.

Privas, Annonay, Tournon, Largentiere, Viviers.

DROME.

Romans, Valence, Crest, Dic Nions, Le Buis.

UPPER ALPS.

Gap, Briançon, Embrun, Serres.

LOWER PYRENEES.

Pau, Bayonne, Ustaritz, Mauleon, Oleron.

GERS.

Auch, Condom, Lectour, Nogaro, Plaisance, Lombes.

UPPER GARONNE.

Toulouse, Beaumont, Grenade, Muret, Rieux.

TARNE.

Castres, Gaillac, Alby, Lavaur.

AVEIRON.

Rhodez, Espalion, Milhau, St. Afrique, Vabre.

HERAULT.

Montpellier, Lodeve, St. Pons, Beziers.

GARD.

Nismes, Alais, Uzès, Vigan.

LOWER ALPS.

Digne, Barcelonnette, Castellane, Monosque.

UPPER PYRENEES.

Tarbre, Bigorre, Lourde, Baigneres, Argelles.

ARRIEGE.

Foix, Pamiers, Mirepoix, St. Lizier, Tarascon.

AUDE.

Carcassone, Castelnaudary, La Grasse, Quillan.

EAST PYRENEES.

Perpignan, Prades, Colioure.

MOUTHS OF RHONE.

Aix, Marseilles, Apt.

VAR.

Toulon, Barjols, Brignoles, Frejus, Grasse, Vence, Nice.

CORSIKA.

Departments.

Chief Towns.

CORSICA.

Bastia, Calvi, St. Fiorenzo.

MONT BLANC,

Chamberry, Cluse, St. Jean.

304. *Climate, Soil, Plants, and Animals.*] The climate of France is more settled than ours; however, if the extremes be as great there, the transitions from heat to cold, and from rain to fair weather, appear less sudden and uncertain than those of our islands. In the interior parts of the kingdom the air is very temperate and salubrious. In the northern parts the winters are intensely cold; but towards the south, so mild that many invalids retire thither from England, at that season, to avoid the rigour of our climate. The quality of the soil varies greatly, according to it's situation; but it is generally very rich, producing corn, flax, wines, oils, and fruits in abundance. They have also animal as well as vegetable productions in great plenty in many parts; but though France, however, produces almost every variety of life, the heats in some places parch up the ground, and destroy the hopes of the year; and hence the poor inhabitants are often obliged to subsist on chesnuts and rye. The French, however, have not been inattentive to promote the cause of agriculture; they have constituted different academies expressly for this purpose, and proposed premiums for it's improvement; and they have been particularly attentive to the culture of their vineyards, which yield excellent grapes, from which great quantities of wine are annually made.

305. *Fossils and Mineral Springs.*] France contains several veins of metals; in the south there are veins of gold and silver, and in the department of the Lower Rhine some of silver and copper; but both are too expensive to be wrought to advantage. Alabaster, marble, jasper, and coal are also found in several parts; and, in the north-west, mines of iron, copper, tin, and lead abound. A mine of ochre has been discovered at Berry, which serves for melting metals, and dyeing the best drab-cloths. Excellent turquoises, the only precious stones France produces, are found in the south; but marble and freestone carries are common in almost every province.

France is celebrated for it's mineral waters; but those of Bareges, near the borders of Spain, under the Pyrenean mountains, are now preferred to all the rest. At Baguciiis, near Bareges, are several salutary mineral waters and baths; as there are also at Forges, Saltsbach, and at St. Amand.

There are several other remarkable springs, particularly one near Ligne, which boils violently, and makes a hissing noise, like water when thrown upon lime; this water has no taste, but is of a poisonous quality, and the birds that drink of it expire immediately.

306. *Mountains, Forests.*] The principal mountains of France are the Alps, which divide it from Italy; the Pyrenees, which separate it from Spain; Mount Jura, which separates it from Swisserland; the range in the north-east; the Cevennes in the south-east; and Mount Puy de Dome.

The chief forests in France are those of Orleans and Fontainbleau, the former contains fourteen thousand acres planted with oak, elm, ash,

ash, &c. ; the latter is nearly as large. Besides these, there is another near Morchismoir, a very considerable one. France likewise contains great numbers of woods, which are some of them large enough to claim the appellation of forests.

307. *Rivers, Canals, Lakes.*] The principal rivers in France are the Rhone, the Soanne, the Garonne, the Charente, the Loire, the Seine, the Rhine, the Maese, or Meuse, the Scheld, the Somme, and the Var. There are also several little rivers which it would be tedious to particularize; though they greatly contribute to facilitate the inland navigation, which is also greatly improved by canals chiefly planned and executed in the reign of Louis XIV. Regular locks for carrying boats over eminences were first erected in this country.

The lakes in France are very inconsiderable. There is one at Issaire: a second at La Besse; and a third on the top of a hill near Alegre, which vulgar report declares to be bottomless.

308. *Commerce, Manufactures.*] The articles of trade in France are it's wines, brandy, vinegar, &c. Fruits, as prunes, pruneloes, dried grapes, pears, apples, oranges, and olives; drugs, oils, and chemical preparations: silk embroidery, tapestry, cambrics, lawns, laces, brocades, and woollen manufactures, in imitation of those of England; paper, parchment, hardware, and toys.

Henry IV. laid the foundation of trade in this country. In 1597 he published the famous edict of Nantz, which secured to the protestants the free exercise of their religion; and, having composed foreign and civil wars, he applied himself, with wonderful attention and success, to cultivate the happiness of his people, by encouraging arts and manufactures. It was he that first introduced canals into France, taking the hint from his neighbours in the Netherlands. Before his reign the silk manufacture was scarcely known in France, but so rapidly did it afterwards increase, that in the reign of his grandson, Louis XIV. the city of Lyons alone employed eighteen thousand looms. However, the unjust, and indeed impolitic revocation of the edict of Nantz, the expulsion of the Protestants, and the ruinous wars maintained by France, decreased the number of manufacturers in a very high degree, so that their silk manufacture is now rivalled by that of England, where the French refugees found encouragement and protection.

The French trade to the different countries of Europe is extensive and lucrative. In the West Indies they possess several valuable and important islands, from which they derive immense benefit; in the East Indies they likewise retain several advantageous settlements.

309. *Curiosities, natural and artificial.*] Springs and caverns form the principal natural curiosities of this kingdom. In the forest of St. Aubin de Cormier there is a subterraneous cavern, through which there flows a rapid torrent of water; and another near Nions, from which issues a violent wind. In the department of the Lower Rhine, there is a cavern out of which flows an oily liquor; and at Salins, in Jura, are several remarkable for their salt-springs. The cave of the Notre Dame de Beaume, in Doubs, is between four and five fathoms broad and from five to eight deep; and at Besancon is another above three hundred

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hundred feet under ground, in the bottom of which is a small river, and is to be frozen in summer and flowing in winter.

France contains several curious remains of antiquity, many of which have been traced back even to the times of the Celts; and the remains of the Romans are numerous in this country. At Orange there is a triumphal arch, and another at Rheims, almost entire. At Nîmes many ruins of antiquity are to be found, among which is the temple of Minerva, the amphitheatre, and a house erected by the Emperor Adrian, called the Maison Quarrée. The celebrated Pont du Garde was raised by the Roman colony at Nîmes, to convey a stream of water over a valley between two mountains for the use of that city, and continues to this day in the most perfect repair; it consists of three bridges, or of arches raised one above another, the height being one hundred and forty-four feet, and the length seven hundred and twenty-three. At Arles is a Roman obelisk of granite, fifty-two feet high, and seven feet in diameter at the base, all of one stone. Roman temples are frequent in France; and at Lyons are the remains of that built by the sixty nations in Gaul, in honour of Augustus and the Romans. These are the public antiquities, and in the cabinets of the curious there are innumerable other ones on a smaller scale.

[*Religion, Language.*] For assuring the freedom of religious opinions and worship, the National Convention, after having heard the report of its Committees of Public and General Safety and of Legislation, decreed——

I. Conformably to the seventh article of the declaration of the rights of man, and the hundred and twenty-second article of the constitution, the exercise of any worship cannot be disturbed.

II. The republic pays for none.

III. The republic furnishes no place for the exercise of worship, nor for the lodging of its ministers.

IV. The ceremonies of every worship are interdicted out of the limits of the place chosen for their exercise.

V. The law does not recognize any minister of worship; none can appear in public with the dress of ornaments attached to religious ceremonies.

VI. Every assembly of citizens, for the exercise of any worship whatsoever, is subject to the superintendence of the constituted authorities.

VII. No sign particular to any worship can be exhibited in any public place, or externally in any manner whatever. The place appropriated to any worship cannot be distinguished by any inscription; proclamation, or public convocation, can be made to invite the citizens to it.

VIII. The communes or sections of communes, cannot, in their respective capacity, purchase or rent any place for the exercise of worship.

IX. No such place can be formed by endowment, or established by tax, to defray the expence.

X. Whoever shall disturb, by violence, the ceremonies of any worship, or insult the objects of it, shall be punished according to the law of correctional police.

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The French language is chiefly composed of words radically derived from the Latin, with many of German origin introduced by the Franks. The Academie Françoise, expressly instituted for the purpose of improving the language, was also of great service to literature; the French from that period began to write with elegance and precision; their native language was studied with grammatical minuteness, and all its most captivating beauties displayed. This elegant and easy language has now become the most universal of all living tongues, and is generally spoken in all the courts of Europe.

311. *Schools, Literati, Arts.*] In every part of the French republic central schools are to be (or have already been) established, according to the population of the different districts. In every district, containing 200,000 inhabitants, there is to be one central school. In each of these schools there is to be a professor of mathematics; of experimental physic and chemistry; of natural history; of logic; of political economy and legislation; of philosophical history of the people; of health; of arts and trades; of general grammar; of belles lettres; of antient languages; of modern languages; and of drawing.

All the professors are to deliver their lectures in the French language.

They are to have public conferences monthly on the progress of the sciences, the arts, and literature.

Each central school is to have a public library, a garden, and a cabinet of natural history; a cabinet of experimental physic; and a collection of machines and models for the instruction of the pupils in arts and trades.

The wits, the literati, the men of science that France has produced are numerous, and their names are established among the learned of Europe. Charlemagne, at an early period, attempted the revival of antient learning in France, and, in some measure, removed the Gothic veil; but, till the reign of the polite and learned Francis I. cotemporary with Henry VIII. of England, the learning of the French was little more than a subtle quibbling and pedantic sort of logic. In the 16th degrees, however, the study of the Greek and Roman classics gave a new turn to their literary pursuits. The works of the two Stephens, Malherbe, Balzac, and the society of Port Royal, enriched the French poetry, or improved the prose; but the reign of Lewis XIV. was the Augustan age of France, and produced Racine, Corneille, Moliere, and Boileau, Bourdaloue, Bossuet, Flechier, and Massillon, Descartes and Pascal. The prince, though illiberal in his religious principles, was an enthusiast for sciences and arts; his reign produced, besides other artists, several eminent painters, particularly Poussin, Le Brun, and Le Sueur; since his time Fenelon, Montesquieu, Maupertuis, D'Alembert, Buffon, Voltaire, and D'Argens have been conspicuous and eminent in the respective lines they pursued, and the sciences and arts are still in high cultivation in France.

312. *History.*] The Aborigines, or first inhabitants of France, were the Celtes or Gauls. The country was called by the Romans, Transalpine Gaul, or Gaul beyond the Alps, to distinguish it from Cisalpine

fine Gaul, the people were of the Christian religion. Brennus, and principally reduced the Romans to the Goths, gave it the name of a collection of Rhine, and repeated their they cut to governed by Salic Law, the sovereign power, and without the lands the power of before the age of the first.

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fine Gaul, on the Italian side of the mountains. These hardy people were often engaged in wars with the Romans. In 721, before the Christian era, they sacked the city of Rome, under their leader Brennus, and blocked up the citizens in the capitol. Gaul was principally reduced under Julius Cæsar, and remained in the possession of the Romans, till the decline of their empire, when it was subdued by the Goths, Burgundians, and Franks. The Franks themselves, who gave it the name of France, or Frankenland, or Freeman's Land, were a collection of several people of Germany, inhabiting the banks of the Rhine, and though they were often repulsed with great loss, they repeated their attempts in still greater numbers, till, in the year 388, they cut to pieces a whole Roman army. In the year 418, they were governed by their king, Pharamond, who is said to have compiled the *Salic Law*, whereby females were precluded from the inheritance of the sovereignty. The Franks and Burgundians, after establishing their power, and reducing the original natives to a state of slavery, parcelled out the lands among their principal leaders, and by these feudal barons, the power of the kings was here, as in the other nations of Europe, before the appointment of standing armies, very much limited or circumscribed.

The first of the French kings, who professed himself a Christian, was Clovis. His mind was much affected with the pathetic relation of the sufferings of Jesus, and he exclaimed with fervour, "Had I been present with my valiant Franks, I would have revenged his injuries". After the death of Clovis, the kingdom was divided among his four sons, and reunited under his grandson, Clotaire, in the year 560. After the death of Clotaire, in 562, the government was again divided among his four sons, and once more reunited under his grandson, Clotaire. These kings, from Merovins, the third after Pharamond, were said to be of the Merovignian race. A revolution having been brought about by Charles Martel, in 717, his son Pepin was the first of the Carlovignian race.

In the year 800, Charlemagne, the son of Pepin, swayed the sceptre of France; he also became master of great part of Germany, Spain, and Italy, and was crowned king of the Romans, by the pope. This prince, who might without flattery be ranked with the most celebrated characters, had he not sometimes been influenced by sanguinary schemes of conquest, and sullied with acts of persecution and tyranny, seemed to follow the example of those first Romans, who made rural labours a relaxation from the fatigues of war; and the great men of the state, adopting the same measures, the French had plenty of their own productions to barter, and circulated them throughout the immense empire, which was then subject to their dominion.

So flourishing a situation, presented a fresh allurements to the Normans, to indulge the inclination they had for piracy. They poured forth from Norway, Denmark, and other parts of Scandinavia, and attacked the sea-coasts. The ravages they committed, and the cruelties they exercised, for a whole century, in the fertile provinces of France, were such, that the affrighted inhabitants were kept in continual dread of slavery or death. About the year 900, they obliged

the French, to yield the northern parts of the kingdom, to Rollo their leader, who married the king's daughter, and was persuaded to profess himself a Christian, thus more firmly establishing the Norman power in France.

These barbarians afterwards gave a king to England, in the person of William, duke of Normandy, who subdued Harold, the last Saxon king, in the year 1066. From William the Conqueror, the kings of England in succession, derive their descent, and the nobles their inheritance. He, and his successors after him, held their territories in France, by inheritance, by conquest, and by treaty; these varied in their extent at different times, till in 1558, the French conquered Calais, Guisnes, and all that the English held in France.

The Carlovignian family continued to reign, till the year 987, when Hugh Capet brought about another revolution, and possessed himself of the regal power, and his successors retained it, till its total extinction, in the deposition of Louis XVI. in 1792.

The late king succeeded his grandfather, Louis XV. in 1774. He seemed to shew early indications of an enlarged and liberal mind. Contrary to the policy and prejudice of the old court, he placed Necker, a protestant, and a native of Switzerland, at the head of the French finances, by whose economic administration, the suppression of costly and sinecure establishments, and by sacrifices, which the king himself made of his property, the burthens of the people were considerably alleviated. He also encouraged the promotion of science, fitting out several vessels on nautical and astronomical discoveries, and charging all his naval officers, by a circular letter, when at war with the English, to abstain from all hostilities against the similar expeditions of the enemy, and treat the ships as neutral vessels.

His interference in the American revolution seems to have hastened the fall of monarchy in France. Arbitrary at home, he sent his armies to fight for liberty abroad, and the expences hereby incurred were more than the revenues of the kingdom could support. Necker was dismissed from the administration of public affairs, and the finances of the nation were on the point of being entirely ruined, when, near the close of 1785, the edict for registering a loan amounting to 3,330,000*l.* was presented to the parliament of Paris. The people murmured, and the parliament remonstrated. The king, however, signified to the select deputations, which were commissioned to convey to him their remonstrances, that he expected to be obeyed without farther delay. The edict was registered on the ensuing day, but accompanied with a resolution, importing that public economy was the only genuine source of abundant revenue, the only means of providing for the necessity of the state, and restoring that credit which borrowing had reduced to the brink of ruin. Upon this the king required the attendance of the grand deputation of parliament; he erased from their records the resolution that had been adopted, and declared himself satisfied with the conduct of Calonne, his comptroller-general.

The states-general had not met since the year 1614; another had occasionally been substituted in its room, distinguished by the title of the Notables, or men of note, consisting of a number of persons from

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all parts of the kingdom, chiefly selected from the higher orders of the state, and nominated by the king himself. The assembly had been convoked by Henry IV. and again by Louis XIII. and was now once more convoked by Louis XVI. in the beginning of 1787. The ancient nobility and clergy had ever been free from all public assessment; the crowds of new noblesse, who had purchased their patents, were also free, with their posterity; and the magistrates likewise, throughout the kingdom, enjoyed their share of exemptions; so that the whole weight of the taxes fell on those who were least able to bear them.

The object of the minister was to diminish the load of the public burthens, on the lower, and most useful, classes of the people, by rendering the taxes general. A clamour was raised against him on account of the deficiency of the public money, in which the nobility, clergy, and magistracy united. Calonne, finding it impossible to stem the torrent, resigned his place, and retired to England. The notables proceeded in their enquiries, and it was now suggested that an assembly of the states should be called, as the notables were not competent to impose a new tax. As the deliberations of the notables were not carried on in secret, this proposal was instantly circulated through the capital. The notables were soon after dissolved, and returned to their respective abodes, to propagate the free opinions to which their free discussions had given birth. They were nevertheless prevailed upon, before their breaking up, to recommend a land and stamp-tax; and the edicts were sent to the parliament to be enregistered, who opposed it. The pageantry of the court was now displayed, to intimidate them, what was termed a bed of justice, and the edicts were enregistered by a mandate of the king. The parliament, on the day after the king held his bed of justice, entered a formal protest against the constitution that had been extorted from them, and declared, that the right of sanctioning the impost belonged only to the states-general, the convocation of which they demanded.

Since the commencement of the present discontents, the capital had been gradually filled with considerable bodies of troops; and, about a week after the parliament had entered the protest, an officer of the French guards, with a party of soldiers, went, at break of day, to the house of each individual member, to signify to him the king's command, that he should immediately get into his carriage, and proceed to Troyes, a city of Champagne, about seventy miles from Paris, without writing or speaking to any person out of his own house before his departure. These orders were served at the same instant, and before the citizens of Paris were acquainted with the transaction, the parliament were already on the road to the scene of their banishment.

After a month's exile they were recalled. They were then desired to register a loan, at which they hesitated; till the king came to the palace, and held a royal session. The edicts were now registered, but the Duke of Orleans protested, in the presence of the king, against the legality of the proceeding. The parliament protested against the legality of the session itself, but to no purpose. The Duke of Orleans,

leans, with four others, were banished; the king called for the journal of the house, destroyed the protest, and forbade it to be inserted again. Great clamours were raised by the banishment of the Duke of Orleans and the other members of parliament; remonstrances were presented by the parliaments of Paris, Bourdeaux, and Rennes, but the exiles were not recalled, till the spring of 1788. Public opinion was perceived to exert a force which threatened to baffle the wonted authority of the regal power.

No alternative remained now to Louis but to plunge the country into all the calamities of civil war, or to comply with the wishes of the people, and re-establish the states-general. In the autumn of 1788 an *arret* was published, which appointed the meeting of the states-general in the spring of 1789; at the same time every step was taken to secure the favourable opinion of the public. New arrangements took place in the administration, and Necker, whom the confidence of the people had long followed, was again introduced into the management of the finances; the torture, which, by a former edict, had been restricted in part, was entirely abolished; every person accused was allowed the assistance of counsel, and permitted to avail himself of any point of law; and it was decreed, that, in future, sentence of death should not be passed on any person, unless the party accused should be pronounced guilty by a majority at least of three judges.

The assembling of the states-general presented a new era in the government of France. They met at Versailles, in the spring of 1789, and assembled in three separate chambers, or rather the clergy and aristocracy withdrew each into a separate chamber. The majority of the aristocracy claimed what they called the privilege of voting as a separate body, and of giving their consent, or their negative in that manner; and many of the bishops, and the high-beneficed clergy claimed the same privilege on the part of their order; but the *Tiers Etat* disowned any knowledge of artificial orders and artificial privileges. After various altercations on this head, the *Tiers Etat*, or commons, they were then called, declared themselves "the representatives of the nation; and that the two orders could be considered but as deputies, corporations, and could only have a deliberative voice when they assembled in a national character with the national representatives." On carrying this motion, the national representatives, as had been concerted, sent an invitation to the two chambers, to unite with them in a national character, and proceed to business. A majority of the clergy, chiefly of the parish-priests, withdrew from the clerical chamber, and joined the nation; and forty-five from the other chamber, joined in a like manner. In a little time, the numbers increased from forty to eighty, and soon after to a greater number; and, at length, the rest of them quitted their chambers, and united with the National Assembly.

The minds of the French had long been agitated by various rumours; the unanimity that had been expected from the different orders of the states was extinguished by the jarring pretensions of each; their mutual jealousies were attributed, by the suspicions of the people, to the intrigue of the court, who were supposed, already, to repent

the hasty assent to their assembling. A dearth, that pervaded the kingdom, increased the general gloom and discontent, and the people, pressed by hunger, and inflamed by resentment, were ripe for revolt. The sovereign also, equally impatient of the obstacles he incessantly encountered, could not conceal his chagrin; the influence of the queen in the cabinet was established, and was attended by the immediate removal of Necker and the ministry, who were favourable to the revolution.

The change of ministry was considered as the prelude of hostilities, and immediately on the news of it reaching Paris, all the play-houses, and places of entertainment, shops and houses, were shut up. The zealots of reform thought it necessary to have recourse to fraud and tumultuary violence. The courtiers strove to counteract their attempts by similar bad arts. The demolition of the Bastile soon followed.

The National Assembly, at the time of this insurrection, was sitting at Versailles, twelve miles from Paris. It was about a week before the rising of the Parisians, and their taking the Bastile, that it was discovered that a plan was forming for dismissing the National Assembly, seizing its members, and thereby crushing, at once, all hopes and prospects of forming a democratical government.

The forces destined for this service, were chiefly the foreign troops in the pay of France, who, for this particular purpose, were drawn from the distant provinces, where they had been stationed. When they were collected, to the amount of between twenty-five and thirty thousand, it was judged time to put the plan in execution. The guards of the king's household surrounded the hall where the assembly sat, ready, at the word of command, to seize their persons, as had been done the year before, at the parliament of Paris.

The archbishop of Vienne was too old to undergo the scene that a few days, or a few hours, might bring forth. A man of more activity, and greater fortitude was thought necessary; and the National Assembly chose Fayette vice-president. At the moment that this storm was impending, a declaration of rights was hastily drawn up by him, and agreed upon, and adopted by the National Assembly, with the view, that if they should fall in the threatened destruction, that then surrounded them, some traces of their principles might have the chance of surviving the wreck.

At length the foreign troops began to advance towards the city. The Prince de Lambesc, who commanded a body of German cavalry, approached by the palace of Louis XV. which connects itself with some of the streets. In his march, he struck an old man with his sword. The French are remarkable for their respect to old age, and the wantonness of this act uniting with the general fermentation they were in, produced a powerful effect, and a cry of, To arms! to arms! spread itself instantly over the city.

Near where the Prince de Lambesc was drawn up, there were large piles of stones, collected for building the new bridge, and with these the people attacked the cavalry. A party of the French guards, upon hearing the firing, rushed from their quarters, and joined the people; and night coming on, the cavalry retreated.

The night was spent in providing themselves with every sort of weapon they could make or procure : guns, swords, smiths hammers, carpenters axes, iron crows, pikes, halberts, pitch-forks, spits, clubs, &c. &c. The incredible numbers in which they assembled the next morning, and the still more incredible resolution they exhibited, embarrassed and astonished their enemies. Little did the new ministry expect such a salute. They had no idea that a body of unarmed citizens would dare to face the military force of thirty thousand men. Every moment of this day was employed in collecting arms, concerting plans and arranging themselves into the best order, which such an instantaneous movement could afford. Broglie continued hovering round the city, but made no farther advances this day, and the succeeding night passed with as much tranquillity as could be expected.

But defence only was not the object of the citizens. Their agitators thought this the time to overthrow established power by insurrection. They every moment expected an attack, or to hear of one made on the National Assembly ; and in such a situation, they considered the most prompt measures the best. The object that presented itself was the Bastile ; and the eclat of carrying such a fortress in the face of such an army, could not fail to strike a terror into the new ministry, who had scarcely yet had time to meet. By some intercepted correspondence this morning, it was discovered, that Dufflesselles, the Mayor of Paris, who appeared to be in the interest of the citizens, was betraying them ; and from this discovery, there remained no doubt that Broglie would reinforce the Bastile the ensuing evening. Flesselles was seized by the people, and fell the first victim to general indignation : his head was struck off, and borne on a lance, amidst crowds of the enraged populace.

There was, adjoining to the city, a large magazine of arms deposited in the Hospital of Invalids, which the citizens summoned to surrender ; and which, after a faint resistance, surrendered. The supplies of arms and ammunition, which had been provided for their subjugation, were turned against the crown.

The Bastile was instantly invested by a mixed multitude, composed of citizens and soldiers, who had joined the popular banner. De Launay, who commanded in the castle, displayed a flag of truce, and demanded a parley ; but, abusing the confidence which these signals inspired, he discharged a heavy fire from the cannon and musquetry on the place upon the besiegers, and made a considerable carnage. Far from intimidating, he only augmented, by so treacherous a breach of faith, the rage of an incensed populace. They renewed their exertions with a valour raised to frenzy, and were crowned with success. The Bastile, that awful engine of despotism, whose name alone diffused terror, and which for many ages had been a place of silence and despair, was entered with shouts by the victorious assailants. De Launay was seized and dragged to the "Place de Greve," was instantly dispatched, and his head carried in triumph through the streets of Paris.

In this prison were found engines, for putting to torture, those unhappy persons, whom the cruelty or jealousy of despotism had determined to destroy. An iron cage, about twelve tons in weight, was found

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found with the skeleton of a man in it, who had probably lingered out a great part of his days in that horrid situation. Among the prisoners released by its destruction were a Major White, a Scotsman, and the Count de Lorges. The first appeared to have his intellectual faculties almost totally impaired, by the long confinement and miseries he had endured; and, by being unaccustomed to converse with any human creature, he had forgotten the use of speech; and the squalid appearance of the latter, his white beard which descended to his waist, and above all, his imbecility, resulting probably from the effect of an imprisonment of thirty-two years, exhibited a spectacle scarcely less affecting.

The next morning after the capture of the Bastille, the monarch appeared in the National Assembly, but without the wonted pomp of Gallic royalty. His address was affectionate and consolatory. "He lamented the disturbances at Paris; disavowed all consciousness of any meditated attack on the persons of the deputies; and added, that he had issued orders for the immediate removal of the troops from the vicinity of the metropolis."—An expressive silence first pervaded the assembly, which presently was succeeded by a burst of applause and acclamation. On the 16th, the king having intimated to the National Assembly, his intention of visiting Paris the following day, he accordingly, on the morning of the 17th, left Versailles in a plain dress, and with no other equipage, than two carriages, with eight horses each; in the first of which he rode himself; a part of the National Assembly in their robes accompanied him on foot; and the militia of Versailles composed his only guard, till the procession arrived at the Seve, where they were relieved by the Paris militia, with Fayette at their head; and from this place the suite of the monarch amounted to about 20,000 men. The progress was remarkably slow; and no shout was to be heard but *Vive la nation!* Bailey, on presenting the keys of the city, addressed the king in a short speech, the exordium of which was:—"These, sir, are the keys which were presented to Henry IV. He came to reconquer his people; it is our happiness to have reconquered our king." On receiving the complimentary addresses of the mayor, &c. the king exclaimed, with an air of pathetic emotion, which scarcely allowed him utterance—"My people may always rely upon my affection." He received from the hands of the mayor the national cockade; and when he shewed himself at the window with this badge of patriotism, the shout of *Vive le roi!* resounded from one extremity to the other. On the return of the king to Versailles, the citizens, almost intoxicated with joy, surrounded his carriage; his countenance, which in the morning bore the aspect of melancholy, was now cheerful and smiling; and appeared sincerely to partake in the general satisfaction.

The events which followed are, by the candid of all parties, allowed to be enveloped in an almost impenetrable veil of obscurity. An incident, which occurred at Versailles, contributed to excite a most unhappy commotion. On the first of October, an entertainment was given by the *gardes-du-corps*, or king's body guards, to the officers of a regiment of Flanders, who had just joined them in the

service of guarding the monarch. Several of the officers of the national guard, with others of the military, were invited. At the second course four toasts were given—the king, the queen, the dauphin, and the royal family.” “The nation” was proposed, but, according to a number of witnesses, expressly rejected by the *gardes-du-corps*. The queen, having been informed of the gaiety of the scene, persuaded the king, who was just returned from hunting, to accompany her, with the heir apparent, to the saloon. The soldiers drank the health of the king, the queen, and the dauphin, with their swords drawn; and the royal guests bowed and retired. The entertainment, which had hitherto been conducted with some degree of order, now became a scene of entire confusion. Nothing was omitted to inflame the passions of the military. The music played the favourite air—“O Richard, O my king, the world abandon thee!” the women of the court distributed white cockades, the anti-patriot sign; and even some of the national guard, it is said, had the weakness to accept of them.

During these transactions, the city of Paris was afflicted with all the evils of famine: for the Duke of Orleans, and the other authors of revolution, actuated either by views of personal ambition, or by dreams of impracticable philosophic reform, scrupled not to perpetrate crimes of violence and hypocrisy, in order to accomplish their purposes, infinitely worse than those which they execrated in the falling court. News arrived of the dreadful banquet at Versailles, with every circumstance greatly magnified. Early on the morning of the 5th, a woman sallied out from the quarter of St. Eustacia, and entering the *corps-de-garde*, and, seizing a drum, paraded the adjacent streets, beating an alarm, and exciting the people, by clamours respecting the scarcity of bread. She was soon joined by a very numerous body, chiefly of women, to the amount of 800, who proceeded to Versailles, where the king, upon hearing their complaints, signed an order for bringing corn from Senlis and de Lagny, and for removing every obstacle which impeded the supply of Paris. This order was reported to the women, and they retired with gratitude and joy.

This band was no sooner dispersed, than it was succeeded by another. The National Assembly continued sitting, but the session was tumultuous, and interrupted by the shouts and harangues of the Parisian fishwomen, who filled the galleries; their applause was mingled with affecting murmurs and complaints, the multitude crying out, that they were actually starving, and that the majority of them had eaten nothing for upwards of twenty-four hours. The president, therefore, humanely ordered, that provisions should be sought for in every part of the town, and the hall of the assembly was the scene of a miserable, scanty, and tumultuous banquet. Indeed, such was the apparent famine, that the horse of one of the *gardes-du-corps* being killed in a tumult, he was immediately roasted, and greedily devoured by the mob. But all this arose from the execrable artifices of the secret movers of the insurrection.

Darkness, and a deluge of rain, added to the horrors of the night. The wretched multitudes, who had travelled from Paris, were ex-

posed,

defect, almost famished, to the inclemencies of the weather, in the open streets: within the castle all was trepidation: nothing was to be heard from without but cries of distress, or the voices of enraged multitudes, demanding the lives of the queen and the *gardes-du-corps*. Towards midnight, however, all appeared tolerably still and peaceable, when the beating of the drums, and the light of innumerable torches, announced the approach of the Parisian army.

The day began to break at about half past five; and, at this period, crowds of women, and other desperate persons, breathing vengeance, advanced to the castle, and an immense crowd found its way to every part.

When the tumult had somewhat subsided, the royal family ventured to show themselves at a balcony; they received the most lively acclamations of respect from the soldiers and the people. A single voice, or a few voices, exclaimed—"The king to Paris;" and this was instantly followed by an universal acclamation, enforcing the same demand. The king addressed them: "You wish me to go to Paris—I will go, on the condition that I am to be accompanied by my wife and children." He was answered by reiterated acclamations of, *Vive le roi!* It was two in the afternoon before the procession set out. During the progress, all was gaiety and joy among the soldiers and spectators; and such was the respect in which the French nation still held the name and person of their king, that the multitude were superstitiously persuaded that the royal presence would actually put an end to the famine. On his arrival, the king was congratulated by the municipality, and declared his approbation of the loyalty which the city of Paris manifested.

The spirit of the nation being so entirely averse from the principles of the high aristocratic party, numbers of them, particularly the king's brothers, and some of the first rank and fortune, took refuge in foreign countries, where they applied themselves indefatigably to the purpose of exciting war against their country.

In 1790, on the anniversary of the taking of the Bastille, a grand confederation of the representatives of the nation, the king, the soldiery, and all who were in ostensible situations, was held in the *Champ de Mars*, the place where the troops had rendezvoused the preceding year, to overawe the capital. Here they renewed their engagements of fidelity to the new constitution.

In the summer of 1791, the royal family attempted to quit the country by flight, but they were arrested at Varennes, and brought back to Paris. A new constitution was presented to the king, in the autumn of this year, who accepted it; and, soon after this, the second national council assembled.

In the year 1792, the war openly commenced between the French and the Confederates. Such, for a time, was the success of the latter, that France seemed ready to be overwhelmed; but before the close of the year the scene was reversed, the French driving out the enemy from their country, and obtaining possession of the greater part of the Netherlands. While the combined armies were successful, and their approaches most alarming, the capital of France was also agitated with the

the fears of internal plots and conspiracies; and the confusion and slaughter, which took place in that city, were dreadful. The Duke of Brunswick, general of the combined armies of Austria and Prussia, published at Coblenz, a declaration to the inhabitants of France, conceived in haughty terms; he declared his intention of putting a stop to the anarchy which prevails in France, and of restoring the king to his power; and yet he afterwards expresses his design not to interfere in the internal government. He considered France as a conquered country, and directions were given to the magistrates, national guards and inhabitants at large, that the city of Paris was threatened to be given up to military execution, in case the least outrage should be offered to the king, queen, or royal family.

A base insurrection was about this time excited in Paris, for the purpose of finally overthrowing the monarchy, and making France a republic, wherein about 8000 lost their lives on both sides. The scene of action was the Tuilleries, which was guarded by foreign troops and the king's particular friends, as well as the national guards; and the place was assailed, and carried by the populace of Paris, and the Marseillois. The royal family retreated to the hall of the Legislative Assembly, before the attack began; but they were scarcely seated when a dreadful cannonading shook the assembly. Some members rose from their seats, and appeared disposed to seek their personal safety by flight; but the president calling them to order, desired them to recollect that every man was at his post. The National Assembly proceeded to deliberate, and a series of decrees were drawn up, and passed, "declaring the executive power suspended; the authority given by the constitution to Louis XVI. from that moment revoked; and inviting the people to meet in primary assemblies, and to form a National Convention," which, by a subsequent decree, was appointed to meet on the 20th of the ensuing month.

On the 2d of September, and on the ensuing day also, great numbers of prisoners were put to death in Paris, on very summary trials and before self-constituted judges. Those whom the jury convicted were cut to pieces with sabres, or pierced through with innumerable pikes. Such as were acquitted, were declared under the protection of the nation, and safely conducted home. The number of those who were killed, amounted to more than a thousand, several of whom were nonjuring priests, who were put in prison, to be detained till an opportunity should occur, of putting in force their sentence of banishment.

The National Convention met on the 24th; and, on the day of their assembling, decreed the abolition of royalty in France: and the following day, it was ordered that all public acts should be dated from that era, or according to the year of the republic.

The trial of the fallen king commenced on the 11th of December, and he was executed on the 21st of January, 1793; he seemed to meet the awful event with confidence or resignation. In the autumn of the same year, his afflicted widow suffered death in a like manner.

The contest between two different parties in the convention,

Giron

Gironde, as they were entirely enraged in the interior, desirous of and, had they might have habits of frugality, educated, and persons and

The people party, or humanity, were by bribes of the unhappiness among the journal, of nounced in club, which still continued unminated on renewed his tumult ensued with drawn over, at length of confusion was it, and 22 as president unite and p unfaithful for the death prison. On the common more than 2 pelled the C before whom by the people alarms and rounded by cil of Paris demand, that of the Giron July.

On the 2 man; and, new constitution Brissot, a der arrest, people again

Gironde, or the Moderates, and the Mountain or the Anarchists, as they were called, is thought to have accelerated, if it did not entirely effect the death of the king. The Mountain party, and the enraged populace, who, many of them, lost near connections or friends in the insurrection, were clamorous for his trial; the Gironde party, desirous of saving his life, wished to gain time, by protraction or delay; and, had they been consistent and unanimous, it is thought that they might have saved the life of Louis, and eventually their own; but the habits of finesse and intrigue, in which the majority of them had been educated, under the old court, disposed them rather to the use of subterfuges and stratagems, than to an open and firm conduct.

The people, instead of attributing the conduct of the Girondine party, or the Brissotines, as they were also called, to motives of humanity, were easily persuaded that their principles had been corrupted by bribes from those powers whom they supposed interested on behalf of the unhappy and fallen monarch. As much of the discontent among the people was supposed to be excited by the inflammatory journal, of which Marat was the conductor, that deputy was denounced in the Convention; but, being in favour with the Jacobin club, which had great influence, he was not pursued with rigour, and still continued his attendance in the hall of the legislature. He recriminated on the Girondines, and denounced 300 of the deputies. He renewed his accusation, and was supported by Robespierre. A violent tumult ensued, and the deputies on both sides of the hall advanced with drawn swords; by the authority of the president, it was, however, at length composed; and in the evening sitting, a decree of accusation was passed against Marat himself, 233 being for it, 82 against it, and 22 excusing themselves from voting. He had signed an address, as president of the Jacobin club, exhorting the popular societies to unite and pour in a shower of petitions, "for the expulsion of those unfaithful members who betrayed their trust, and who did not vote for the death of the tyrant." Marat was committed to the Abbey prison. On the 15th, a petition was presented to the Convention by the commons of the 48 sections of Paris, demanding that Brissot, with more than 20 others of the Girondine, should be impeached, and expelled the Convention. Marat was unanimously acquitted, by the jury before whom he was arraigned, on the 24th, and brought in triumph by the people to resume his seat in the Convention. After various alarms and tumults in the capital, the hall of the assembly was surrounded by an immense crowd of people, with the revolutionary council of Paris at the head of an armed force: they were violent in their demand, that a decree of accusation should be passed against a number of the Girondines, and, after much tumult, this was done on the 2d of July.

On the 23d, the Convention issued the declaration of the rights of man; and, a few days after, they announced the completion of the new constitution of France.

Brissot, and some other of the deputies, who had been decreed under arrest, escaped to the country, and endeavoured to stir up the people against the Mountain; but these dispatched commissioners to the

the departments, most of the fugitive deputies were captured, and congratulatory addresses were sent in to the Convention from the different parts of the country.

The southern departments only remained attached to the fallen party. A congress of the departments was convoked at Lyons, in which the Mountain party was declared to be outlawed, and the people of Marseilles and Toulon entered with them into that famous confederacy, for dissolving the Convention, which has since been distinguished by the name of federalism. The department of La Gironde entered warmly into the dispute, and that of Calvados broke out into open revolt. The horrors and desolation to which the French were now exposed, are perhaps unparalleled in the history of any other nation. Immense hosts of foreign enemies, of various languages and governments, ravaged their frontiers. They were assailed on every side, both by sea and land, the most celebrated powers in Europe, both inland and maritime, being united in the hostile league. But the most dreadful of all their calamities, were their internal animosities. The government seemed to be driven from one act of madness and desperation to another, and their efforts resembled the convulsive energy of a paroxysm; and, like a desperate maniac, it might be said to tear and wound its own body. One city and department after another were reduced to obedience to the Convention, which spread terror and desolation throughout the land: it then fell upon its own members, and one party after another was sent to execution.

To expel the invaders from their territory, they raised the people in a mass. They decreed, among other articles, that "From the present time till that, when all the enemies shall have been driven from the territory of the republic, all Frenchmen shall be in permanent readiness for the service of the armies. The young men shall march to the combat, the married men shall forge arms, and transport the provisions; the women shall make tents and clothes, and wait in the hospitals; the children shall make lint of old linen; the old men shall cause themselves to be carried to the public squares, to excite the courage of the warriors, to preach hatred against the enemies of the republic."

While the horrors of war were raging both within and without this agitated country, the National Convention formed a new calendar. The year, according to this, is divided into 12 months, of 30 days each, with 5 intercalary days, which are dedicated to national festivity, and called *Sans-culottides*. Each month is divided into decades, or periods of ten days, the last of which is appointed as a day of rest or relaxation. Their year begins with the Autumn, or the 22d of our Ninth-month, falsely called September, or Seventh-month. Their Autumn months are Vendemaire, or Vintage-month; Brumaire, or Fog-month; and Frimaire, or Frost-month. Their Winter-months are Nivose, or Snow-month; Pluvisoie, or Rain-month; and Ventose, or Wind-month. Their Spring-months are Germinal, or Blossom-month; Floreal, or Flower-month; and Prairial, or Meadow-month. And their Summer-months are Messidor, or Harvest-month; Thermidor, or Heat-month; and Fructidor, or Fruit-month. However

ingenious

ingenious this division of the year may appear, the Republicans, in adopting it have departed from their professed principle of equality, as it applies only to the European part of the republic, the distant parts lying between the tropics, and in the southern hemisphere, have the seasons different. The days of the decade bear the numeral names of Primidi, Duodi, Tridi, Quartidi, Quintidi, Sextidi, Septidi, Octodi, Nonidi, Decadi; and the name of the day of the decade, consequently, more nearly tells the day of the month than our almanacks can; for instance, the Quintidi, or Fifth-day, is always the fifth, fifteenth, or twenty-fifth day of the decade, or the fifth day of the *fanfculottides*.

Our limits do not allow us to enter into a detail of the atrocities committed in France, when the Mountain party came into power. The cruelty they exercised in their severities towards those who stood in their way, has, perhaps, only been equalled in the conduct of the combined powers, in giving up, or leaving to their furious armies, the unhappy emigrants who had joined their confederacy.

On the 30th of October, Brissot, and twenty other deputies, were executed, on the charge of exciting civil war in the South. They appeared generally to meet their fate with tranquillity or firmness, and some of these enthusiasts for liberty exclaimed, *Vive la République* to the last moment of their lives.

Besides several other sufferers, the celebrated woman Roland was executed before the close of the year. Her attachment to the party of the Gironde, of which number was her husband, was the only crime alleged against her, and in this attachment she gloried both at the tribunal and on the scaffold.

On the 5th of February, 1794, SLAVERY WAS ABOLISHED THROUGHOUT THE FRENCH REPUBLIC.

On the 25th of March, Herbert and nineteen others were executed on the charge of a conspiracy against the liberty of the French people. The crowds of spectators were immense, and they disgraced humanity, by the most cruel and barbarous exultations on the occasion; but the prisoners disregarded the indignation expressed against them, and embraced each other when arrived at the foot of the scaffold.

On the 5th of April, Danton and fifteen others were executed on the charge of conspiracy, or corrupt practices. They generally behaved with intrepidity in their last moments; and Danton, in particular, who suffered the last, seemed quite above the fear of death.

On the 10th of May, the poor orphans of the late royal pair lost the last relation, which remained to them in France, by the execution of their aunt Elizabeth, the sister of their father. She ascended the scaffold, with twenty-five others, condemned at the same time, and though she bled the last, she is said to have displayed a courage or fortitude superior to them all. All these are but a few, in comparison of the numbers who suffered. The manner of execution by the guillotine, so instantaneous, was yet accounted too slow; it dispatched but one at a time: the victims, therefore, to revolutionary measures, as they were called, were gathered together in bodies, and mowed down.

down, or torn to pieces by the discharge of artillery through them, and cast into the rivers and drowned, or sunk in companies on board of vessels. Thousands were destroyed by these sanguinary proceedings, as well as in the opposition of force to force, on the frontiers and in the interior; and thousands of others sought asylum in foreign lands. Terror and desolation issued from the revolutionary tribunals with more certain step, and vindictive hand, as being organized, and with stride as rapid as when they overtook, in earlier times, the victims of an outrageous populace. In the mean time the career of conquest on the frontiers was rapid and decisive; they drove their enemies from the different parts of the republic, and pursued them, from post to post, till the territories annexed to it included the people of several different languages.

On the 26th of July, 1794, Robespierre was accused, in the Convention, of being a tyrant; and it was decreed, that he, with several others of his party, should be arrested. When he, St. Just, and Couthon were sent to the Luxemburg, the administrator of police would not receive them as prisoners. They were then taken to the Hotel de Ville, where they were received with open arms. The Commandant, who was also arrested, found means to escape, and rode about the streets, at the head of some horse, accompanied by his adjutants, desiring the people to arm, for that Robespierre was arrested, and liberty trod under foot; he was believed by some, particularly the cannoneers, and between nine and ten, found himself at the head of about 4000 men, on the Place du Caroufel. The Commune rang the tocsin, and the Place de Greve was filled with armed men, and a number of pieces of cannon. Robespierre, St. Just, and Couthon, with the Commune, formed themselves into a National Convention, declared the other representatives of the people, traitors to their country, and outlawed them; sent circular letters to all the districts, and appointed a Revolutionary Tribunal, to condemn all those to death who should oppose them. The alarm bell was sounded at the Jacobin club, which also declared in favour of Robespierre. All Paris was in motion, and a civil war seemed to be on the point of breaking out. The National Convention, on their part, outlawed Robespierre, and the other members, with the Commandant, and all the members of the Commune. A proclamation was issued, and read in all the districts of Paris, representing that the country was in danger. The people declared for the Convention, and one of the members flew to the Hall of the Commune at the head of some resolute men. This confused the mutineers. Robespierre and Couthon attempted to destroy themselves, but were only wounded: others endeavoured to escape, but the place was so surrounded, that they were all taken, and sent to the Committee of Public Safety. Another member, in the mean time, arrested the President of the Jacobin Club, shut up their hall, and took the keys to the Convention. At break of day, the tumult was over.

On the following day, between six and seven in the evening, twenty-two of the mutineers received punishment. Robespierre, in his attempt to shoot himself, had so mangled his face, that, when the executioner took off the cloth which covered and bound it up, his lacerated

VI. jaw dropped, exhibiting a frightful spectacle ; he could not speak, but both he and his adherents, like the other revolutionists, seemed to die undaunted.

On the 29th, sixty-eight municipal officers, concerned in the conspiracy, were also executed. Since that time the executions have been very few. Barrere, and some other members, who acted with Robespierre, were sentenced to banishment : but multitudes of prisoners were released, amid the acclamations of the people, who received them with embraces and tears of joy. The seventy-one imprisoned members of the Convention were released, and resumed their seats ; and the insurgents in the west laid down their arms, and were admitted to the republic.

313. *Declaration of Rights adopted by the Convention in 1793.*] The French people, convinced that forgetfulness of, and contempt for, the natural rights of man, are the only causes of the crimes and misfortunes of the world, have resolved to expose, in a declaration, the sacred and inalienable rights, in order that all citizens, being able always to compare the acts of the government with the end of every social institution, may never suffer themselves to be oppressed and degraded by tyranny ; and that the people may always have before their eyes the basis of their liberty and happiness ; the magistrates the rule of their duty ; and the legislators the object of their mission.

They acknowledge therefore and proclaim, in the presence of the Supreme Being, the following declarations of the rights of man and of citizens :

Article I. The end of society is common happiness, government is constituted to secure to man the enjoyment of his natural and imprescriptible rights.

II. These rights are equality, liberty, safety, and property.

III. All men are equal by nature, and before the law.

IV. The law is the free and solemn expression of the general will. It ought to be the same for all, whether it protects or punishes. It cannot order but what is just and useful to society. It cannot forbid but what is hurtful.

V. All citizens are equally admissible to public employments. Free people know no other motives of preference in their elections than virtue and talents.

VI. Liberty is that power which belongs to a man of doing every thing that does not hurt the rights of another : its principle is nature : its rule justice : its protection the law : and its moral limits are defined by this maxim, " Do not to another, what you would not wish done to yourself."

VII. The rights of manifesting one's thoughts and opinions, either by the press, or in any other manner : the right of assembling peaceably, and the free exercise of religious worship, cannot be forbidden. The necessity of announcing these rights supposes either the presence or the remembrance of despotism.

VIII. Whatever is not forbidden by the law cannot be prevented. No one can be forced to do that which it does not order.

IX. Safety

IX. Safety consists in the protection granted by the society to each citizen for the preservation of his person, his rights, and his property.

X. The law avenges public and individual liberty for the abuse committed against them by power.

XI. No person can be accused, arrested, or confined, but in case determined by the law, and according to the forms which it prescribes. Every citizen summoned or seized by the authority of the law, ought immediately to obey; he renders himself culpable by resistance.

XII. Every act exercised against a man to which the law does not apply, and in which its forms are not observed, is arbitrary and tyrannical. Respect for the law forbids him to submit to such acts; and attempts are made to execute them by violence, he has a right to repel force by force.

XIII. Those who shall solicit, dispatch, sign, execute, or cause to be executed, arbitrary acts, are culpable, and ought to be punished.

XIV. Every man being supposed innocent until he has been declared guilty, if it is judged indispensable to arrest him, all severity not necessary to secure his person ought to be strictly repressed by the law.

XV. No one ought to be tried and punished until he has been legally summoned, and in virtue of a law published previous to the commission of the crime. A law which should punish crimes committed before it existed would be tyrannical. The retro-active effect given to a law would be a crime.

XVI. The law ought not to decree any punishments but such as are strictly and evidently necessary—Punishment ought to be proportionate to the crime, and useful to society.

XVII. The right of property is that right which belongs to every citizen to enjoy and dispose of, according to his pleasure, his property, revenues, labour, and industry.

XVIII. No kind of labour, culture, or commerce, can be forbidden to the industrious citizens.

XIX. Every man may engage his services and his time, but he cannot sell himself—his person is not alienable property. The law does not acknowledge servitude—there can exist only an engagement of care and gratitude between the man who labours, and he who employs him.

XX. No one can be deprived of the smallest portion of his property without his consent, except when the public necessity, legally proved, evidently requires it, and on conditions of a just and previous indemnification.

XXI. No contribution can be established but for general utility and to relieve the public wants. Every citizen has a right to consent in the establishment of contributions, to watch over the use made of them, and to call for a statement of their expenditure.

XXII. Public aids are a sacred debt. The society is obliged to provide for the subsistence of the unfortunate, either by procuring them work, or by securing the means of existing to those who are unable to labour.

XXIII. Instruction is the want of all, and the society ought to employ with all its power, the progress of public reason; and to place instruction within the reach of every citizen.

XXIV. T

arva from Montejo : those in Tra los Montes, and the rock of Lisbon, at the mouth of the Tajo ; besides these, there are several less considerable ones ; and they abound in all kinds of ores, particularly of silver, copper, tin, and iron ; but the Portuguese, being amply supplied with metals, and particularly gold, from their possessions in America, and other parts of the globe, no mines are worked in their country. Gems of various kinds, such as turquoises and hyacinths, beautiful species of veined marble, mill-stones, and many curious kinds of the lapidary kind are found in different provinces ; and on the hill of Alcantara, in the vicinity of Lisbon, there is a remarkable mine of saltpetre.

Mineral and medicinal springs, both hot and cold, are found in Portugal ; one in particular, of the first sort, about forty-five miles from Lisbon, has an hospital built near it for the benefit of the poor.

329. *Rivers, Lakes.*] Next to the Duero, Minho, Tajo, and Guadiana, which have been already mentioned in Spain, are the Mondego, the Limia, (which is the famed Lethe of the ancients) the Tago, the Vanda, the Lesa, the Ave, and the Cavado. There is a number of others of less note ; and some authors assert, that the several rivers in the little kingdom of Portugal do not amount to less than five thousand.

On the top of Sierra de Estrella, are two lakes of vast extent, and one of them is of an amazing depth, having never yet been fathomed. Near Rova is one that makes a rumbling noise, which may be heard a considerable way off ; and in the neighbourhood of the river Mondego is a lake, or rather pool, which is said to absorb every thing that is thrown into it, though of ever so light a nature.

330. *Commerce, Manufactures.*] The Portuguese exchange their wines, fruit, salt, and other articles for foreign manufactures, especially those of the English. They fabricate some linen, woollen, and coarse silks, and are celebrated for candying and preserving fruit.

Their colonies in Brasil yield vast quantities of gold, silver, diamonds, sugar, brazil, and other woods for dying, tobacco, gums, and drugs. Their settlements on the east and west coasts of Africa are very extensive, from whence they also import gold, and they carry on a considerable trade with the East Indies.

331. *Curiosities.*] The remains of some Moorish castles, the Roman bridge and aqueduct at Coimbra, the walls of Santarém, which are likewise supposed to be the works of the Romans. These, and the fountains, already mentioned, form the principal curiosities of this kingdom.

332. *Profession, Language.*] The Portuguese are of the church of Rome. John III. introduced the inquisition into this country, and so oppressive and inhuman as this tribunal is, it has been called the Holy Office, and its festivals, or cruel burnings, *Auto de Fe*, or the Act of Faith. The power of the inquisition, however, is now taken out of the hands of the ecclesiastics, but it is converted into a state trap for the benefit of the crown.

The Portuguese language differs from that of Spain, only provincially,

cially, with the addition of some words originally borrowed from other nations; and is esteemed strong, energetic and expressive.

333. *Learning.*] Useful learning and liberal science are banished from Portugal, by the decretals of their church; and though there are universities at Coimbra and Evora, and several academies of royal institution, all attempts to diffuse useful knowledge are defeated by the tyrannic sway of superstition, which brands with the name of heresy, even the improvements in natural knowledge; as the doctrines of Newton, Galileo, and other celebrated philosophers; yet the ancestors of the present Portuguese were certainly possessed of more knowledge, with respect to astronomy, geography, and navigation, than all the world besides, about the middle of the sixteenth century; but we hardly meet with one name transmitted to posterity, as eminent for literary abilities, except the poet Camoens, author of the *Lusiad*, who was himself a great adventurer and voyager.

334. *History, Government.*] The ancient inhabitants of this country were called Lusitani, and underwent from the Romans, Goths, nations, and Moors, the revolutions of Spain. About 1146, Portugal became a distinct kingdom under Alonzo. Upon the death of Henry, King of Portugal, in 1580, Philip II. of Spain, seized upon this country; but in 1640, the Duke of Braganza recovered it from the Spaniards, and was crowned King, by the name of John IV. Portugal has been independent of Spain ever since. Its constitution is absolute monarchy.

Since the establishment of the family of Braganza on the throne of Portugal, no eminent part in the political intercourse of the European nations has been, at any time, acted by the Portuguese. In the late war for the Spanish succession, the Portuguese took part with the allies. A commercial treaty between Portugal and Britain co-operating with the situation of the Portuguese dominions, and the American competition between Britain and Spain, has preserved Portugal in faithful alliance and dependency upon England. The Catholic religion, the inquisition, absolute monarchy, have too long prevented all improvement in Portugal. Portugal has been threatened by France, but depends for protection upon the armies and fleets of Britain, and upon the impossibility that the Spanish monarch should take part, heartily with France, against Portugal, without becoming the author of his own fall. Britain receiving from Portugal, wines, gold, diamonds, and fruits; cloths, and almost every other foreign article of use or luxury, are supplied by Britain to the Portuguese in commercial return. The Portuguese begin, at last, to seek the advantages of British education; and Portugal is likely to receive the illumination of learning and liberality.

ber of citizens present, having a right to vote. 34. Primary assemblies are formed on extraordinary occasions, on a demand of a fifth of the citizens, who have a right to vote in them. 35. The convocation is made, in this case, by the municipality of the ordinary place of meeting. 36. These extraordinary assemblies do not deliberate but when one more than the half of the citizens, who have a right to vote in them, are present.

Of the Electoral Assemblies.

37. The citizens met, in primary assemblies, nominate one elector for every two hundred citizens, present or not; two for from two hundred and one to four hundred; and three for from four hundred and one to five hundred. 38. The holding of the electoral assemblies, and the mode of elections, are the same as in primary assemblies.

Of the Legislative Body.

39. The legislative body is one, indivisible and permanent. 40. Its session is for a year. 41. It meets on the first of July. 42. The national assembly cannot be constituted, if it do not consist of one or more than half of the deputies. 43. The deputies cannot be examined, accused, or tried at any time, for the opinions they have delivered in the legislative body. 44. They may, for a criminal act, be seized, *in flagrant delit*; but a warrant of arrest, or a warrant summoning to appear, cannot be granted against them, unless authorized by the legislative body.

Holdings of the Sitzings of the Legislative Body.

45. The sittings of the national assembly are public. 46. The minutes of it's sittings are printed. 47. It cannot deliberate, if it be not composed of two hundred members at the least. 48. It cannot refuse to hear it's members speak in the order in which they have demanded to be heard. 49. It deliberates by a majority of the members present. 50. Fifty members have a right to require the appeal nominal. 51. It has the right of censure on the conduct of it's members within itself. 52. The police appertains to it in the place of it's sittings, and in the external circuit which it has determined.

Of the Functions of the Legislative Body.

53. The legislative body proposes laws and passes decrees. 54. Under the general name of laws are comprehended the acts of the legislative body, concerning the legislation, civil and criminal; the general administration of the revenues, and of the ordinary expences of the republic; the national domains; the title, the weight, the impression, and the denomination of money. The nature, the amount, and the collection of contributions; the declaration of war; every new general distribution of the French territory; the public instruction; the public honours to the memory of great men. 55. Under the particular name of decrees are included the acts of the legislative body, concerning the annual establishment of the land and sea forces; the permission or the prohibition of the passage of foreign troops through the French territory; the introduction of foreign naval forces into the ports of the republic; the measures of general safety and tranquillity; the annual and occasional distribution of public succours and works.

The orders for the fabrication of money of every kind; the unforeseen and extraordinary expenses; the measures, local and particular, to an administration, a commune, or any kind of public works; the defence of the territory; the ratification of treaties; the nomination and the removal of commanders in chief of armies; the prosecution of the responsibility of members of the council, and the public functionaries; the accusation of persons charged with plots against the general safety of the republic; all change in the partial distribution of the French territory; national recompences.

Of the Formation of the Law.

56. The plans of law are preceded by a report. 57. The discussion cannot be opened, and the law cannot be provisionally resolved upon till fifteen days after the report. 58. The plan is printed, and sent to all the communes of the republic under this title:—*Law proposed*. 59. Forty days after the sending of the law proposed, if, in more than half of the departments, the tenth of the primary assemblies of each, regularly formed, have not objected to it, the plan is accepted, and becomes law. 60. If there be an objection, the legislative body convokes the primary assemblies.

Of the entitling of Laws and Decrees.

61. Laws, decrees, judgments, and all public acts are entitled—*In the name of the French people*, the ——— year of the French republic.

Of the Executive Council.

62. There is one executive council, composed of twenty-four members. 63. The electoral assembly of each department nominates one candidate. The legislative body chooses the members of the council from the general list. 64. One half of it is renewed by each legislature in the last month of the session. 65. The council is charged with the direction and superintendence of the general administration. It cannot act but in execution of the laws and decrees of the legislative body. 66. It nominates, not of it's own body, the agents in chief of the general administration of the republic.

67. The legislative body determines the number and the function of these agents. 68. These agents do not form a council. They are separated without any immediate correspondence between them; they exercise no personal authority. 69. The council nominates, not of it's own body, the external agents of the republic. 70. It negotiates treaties. 71. The members of the council, in case of malversation, are accused by the legislative body. 72. The council is responsible for the non-execution of laws and decrees, and for abuses which it does not denounce. 73. It recalls and replaces the agents in it's nomination. 74. It is bound to denounce them, if there be occasion before the judicial authorities.

Of the Connection of the Executive Council with the Legislative Body.

75. The executive council resides near the legislative body. It has admittance and a separate seat in the place of sittings. 76. It is heard as often as it has an account to give. 77. The legislative body calls it into the place of it's sittings, in whole or in part, when it thinks fit.

Of the Administrative and Municipal Bodies.

78. There is a municipal administration in each commune of the republic; in each district an intermediate administration; in each department a central administration. 79. The municipal officers are elected by the assemblies of the commune. 80. The administrators are nominated by the electoral assemblies of department and district. 81. The municipalities and the administrations are renewed, one half, every year. 82. The administrators and municipal officers have no character of representation; they cannot, in any case, modify the acts of the legislative body, or suspend the execution of them. 83. The legislative body determines the functions of the municipal officers and administrators, the rules of their subordination, and the penalties they may incur. 84. The sittings of municipalities and administrations are public.

Of Civil Justice.

85. The code of civil and criminal laws is uniform for all the republic. 86. No infringement can be made on the rights which citizens have to cause their differences to be pronounced upon by arbitrators of their choice. 87. The decision of these arbitrators is final, if the citizens have not reserved the right of objecting to them. 88. There are justices of the peace elected by the citizens, in circuits determined by the law. 89. They conciliate and judge without expence. 90. Their number and their competence are regulated by the legislative body. 91. There are public arbitrators elected by the electoral assemblies. 92. Their number and their circuits are fixed by the legislative body. 93. They take cognizance of disputes which have not been finally determined by the private arbitrators or the justices of the peace. 94. They deliberate in public; they give their opinions aloud; they pronounce, in the last resort, on verbal defences, or simple memorials, without procedures, and without expence; they assign the reasons of their decisions. 95. The justices of the peace and the public arbitrators are elected every year.

Of Criminal Justice.

96. In criminal cases, no citizen can be tried, but on an accusation received by a jury, or decreed by the legislative body; the accused have counsel, chosen by themselves, or nominated officially: the process is public. The fact and the intention are declared by a jury of judgment; the punishment is applied by a criminal tribunal. 97. The criminal judges are elected every year by the electoral assemblies.

Of the Tribunal of Appeal.

98. There is one tribunal of appeal for all the republic. 99. This tribunal does not take cognizance of the merits of the case; it pronounces on the violation of forms, and on express contravention of the law. 100. The members of this tribunal are nominated every year by the electoral assemblies.

Of Public Contributions.

101. No citizen is exempt from the honourable obligation of contributing to the public charges.

Of the National Treasury.

102. The national treasury is the central point of the receipts and expences

expences of the republic. 103. It is administered by accountable agents, nominated by the executive council. 104. These agents are superintended by commissioners, nominated by the legislative body, not of it's own members, and responsible for abuses which they do not denounce.

Of Accountability.

105. The accounts of the agents of the national treasury, and the administrators of the public money, are given in annually to responsible verifiers. 106. These verifiers are superintended by the commissioners, in the nomination of the legislative body, not of it's own members, and responsible for errors and abuses which they do not denounce; the legislative body passes the accounts.

Of the Forces of the Republic.

107. The general force of the republic is composed of the whole people. 108. The republic maintains in it's pay, even in the time of peace, an armed force by sea and land. 109. All the French are soldiers; they are all exercised in the use of arms. 110. There is no generalissimo. 111. Difference of ranks, their distinctive marks and subordination, subsist only with relation to service, and during it's continuance. 112. The public force, employed for maintaining order and peace in the interior, does not act but on the requisition, in writing, of the constituted authorities. 113. The public force, employed against the enemies from without, acts under the orders of the executive council. 114. No armed body can deliberate.

Of National Conventions.

115. If in one more than half of the departments, the tenth of the primary assemblies of each, regularly formed, demand the revision of the constitutional act, or the change of some of it's articles, the legislative body is bound to convoke all the primary assemblies of the republic, to know if there be ground for a national convention. 116. The national convention is formed in the same manner as the legislatures, and unites in itself their powers. 117. It employs itself, with respect to the constitution, only on the objects which were the cause of it's convocation.

Of the Correspondence of the French Republic with Foreign Nations.

118. The French people is the friend and natural ally of every free people. 119. It does not interfere in the government of other nations. It does not suffer other nations to interfere in it's own. 120. It gives an asylum to foreigners, banished from their country for the cause of liberty; it refuses it to tyrants. 121. It does not make peace with an enemy that occupies it's territory.

Of the Guarantee of Rights.

122. The constitution guarantees to all the French, equality, liberty, safety, property, the public debt, the free exercise of worship, a common instruction, public succours, the indefinite liberty of the press, the right of petition, the right of meeting in popular societies, the enjoyment of all the rights of man. 123. The French republic honours loyalty, courage, age, filial piety, misfortune. It puts the deposit of it's constitution under the guard of all the virtues. 124. The declaration

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declaration of rights, and the constitutional act, are engraven on tables, in the bosom of the legislative body, and in the public places.

(Signed)

COLLOT D'HERBOIS, President.

DURAND MALLAINE,
DUCOS,
MEAULLE,
CH. DELACROIX,
GOSSUIN,
P. A. LALOY.

} Secretaries.

In consequence of the fall of Robespierre, the survivors of the Brissotine party were restored to the Convention. But the Jacobins were too powerful to permit that they should rise to their ancient ascendancy in the government. A new party of Royalists had, in the mean time, acquired considerable influence. The convention had become odious, and was to be dissolved. A new legislature divided into two councils, —a Directory, with the powers of royalty,—and the members, the first servants of the directory—were instituted to conduct the legislation and the government of France. In Flanders, in Germany, in Italy, in Holland, victory had crowned the French arms. Many of the allies had humbly sued for peace, and had with difficulty obtained it. Amidst every change in their internal government, they were still victorious abroad. Britain alone, and that only at sea, resisted, and triumphed over their exertions. Even Britain was at last driven to sue for peace. The French insulted the British embassy by insolence, and vain pretence. The royalists had, however, gained an ascendancy in the councils, which would quickly have restored peace to Europe, and regal government to France, if the constitution had not again been violated, to disappoint their designs. While Austria, alone, of the continental powers, continued to resist the French arms; the Italian dominions of that imperial house were lost. Invasion even penetrated to the heart of her German dominions. Though Moreau was forced to retreat out of Swabia, yet the Emperor of Germany saw himself obliged to buy an uncertain peace at the dearest rate. Rome became the prize of the French arms. In violation of all political faith, the French overturned the ancient constitution of the Swiss republic, and subjugated those long-unconquered states. The French nation cry for peace; yet glory in triumph, and in the hopes of universal success.

Spain was forced even to declare war against those allies, with which she had not long before combined for the restoration of monarchy in France. Rebellion was excited in Ireland; and every means was employed to bring the whole naval force of Europe to crush the navy of Britain. The conquest of all the shores and isles of the Mediterranean, was meditated: and Buonaparte, the conqueror of Italy was dispatched to achieve, with a wanton attack on the Turkish empire, the conquest of Egypt.

But, the French, the Dutch, the Spanish fleets have been successfully destroyed by that of Britain. The French have weakly lost the best opportunities for making Ireland, permanently, a theatre of war. The conduct of France towards neutral nations, and the strength of the British navy, have enabled Britain to engross, more than ever, the

commerce of the world. Buonaparte's army has been fruitlessly wasted in Egypt. In the opening campaign of 1799, the new efforts of Austria, the supplies of money from Britain, the auxiliary arms of Russia have, on all sides, broken through those plans of offence which the French endeavoured to carry into execution. The French directory and councils still maintain their system of government, but maintain it only by the infraction of the constitution. For its support, a system of government the most completely military and coercive, is found necessary in France. It may be, that the French shall, by new efforts, yet triumph in this campaign. The probability seems to be otherwise. The whole train of these events has shewn that no beneficial change is ever to be accomplished by the *violent* dissolution of any *legal* government.

SECTION XXXVII.

Spain.

Spain lies between thirty-six and forty-four deg. north latitude, and between ten deg. west and three deg. east longitude. It is bounded on the north by the Bay of Biscay, and the Pyrenean mountains; on the south by the Straights of Gibraltar; on the east by the Mediterranean Sea, and on the west by Portugal and the Atlantic Ocean.

314. *Divisions.*] It is divided into the following kingdoms, principalities or provinces.

<i>Provinces.</i>	<i>Chief Towns.</i>
GALICIA.	Compostella, Mondonedo, Lugo, Ortense, Tuy, Corunna, Ferrol, Vigo, Betanzes, Rivadavia,
ASTURIA.	Oviedo, Santillana, Aviles, St. Vincent.
BISCAY.	Bilboa, Tholosa, Vittoria, Port Passage, St. Sebastian, Fontarabia, St. Andrew, Lacedo, Ordunna, Placentia.
NAVARRRE.	Pampeluna, Olita, Tudela, Estella, Sanguesa.
ARRAGON.	Saragossa, Jaca, Huesca, Balbastro, Tarazona, Albarasin, Teruel, Ainsa, Catalajud, Boria.
CATALONIA.	Barcelona, Urgel, Balaguer, Lerida, Tortosa, Girona, Tarragona, Roses, Vich, Cardonna, Solsona, Puycerda, Manresa.
VALENCIA.	Valencia, Villa Hermosa, Origuela, Segorbe, Xativa, Alicante, Denia, Gandia, Morviedro, Villareal, Alzira, Altea.
MURCIA.	Murcia, Lorca, Carthagena, Caravaca, Mula.
GRANADA.	Granada, Malaga, Almeria, Guadix, Ronda, Antiquera, Braga, Loya.

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OLD CASTILE.

Burgos, Logronno, Calahorra, Soria, Osma, Valladolid, Segovia, Avila, Sigüenza, Roa, Aranda, Calzada, Negera, St. Domingo.

NEW CASTILE.

Madrid, Toledo, Cuenca, Ciudad Real, Alcala de Henarez, Almanza, Escorial, Gaudalaxara, Brihuega, Calatrava, Villena, Requena.

LEON.

Leon, Placencia, Toro, Zamora, Astorga, Salamanca, Alva, Ciudad Rodrigo.

ESTREMADURA.

Merida, Badajoz, Placentia, Coria, Truxillo, Elleren, Alcantara, Medelin.

The Spanish islands in the Mediterranean are Majorca, Minorca, and Ilica.

315. *Climate, Soil, Produce.*] The air of Spain is dry, and the sky serene and clear, except during the equinoctial rains; but in the southern provinces, during the summer months, the heat is excessive.

The soil is extremely fertile, but the natives indolent to excess, suffer it to become steril for want of cultivation, and scarcely raise corn sufficient for the necessary calls of life. In many places the richest and most delicious fruits grow almost spontaneously, particularly orange, lemons, prunes, citrons, almonds, grapes, and figs. The Spanish wines are in high estimation among foreigners; and even sugar canes arrive at the utmost perfection; saffron, honey, and silk, are produced in great abundance in almost every province. Some of the mountains are clothed with wood, fruits, and herbage, to their very summits. A variety of aromatic herbs grow every where, imparting a fine flavour to the flesh of the sheep and kid which feed on them. Seville is especially celebrated for its oranges, and Murcia produces mulberry trees in such abundance, that the product of its silks amounts to 200,000 l. a year. This country, however, is much infested with locusts, which sometimes darken the meridian sun, consume the verdure of the fields, and destroy the hope of the year; and from this dreadful calamity, whole provinces have felt all the horrors of famine; and the inhabitants are extremely inattentive to the destruction of the eggs of these formidable insects, which might timely prevent these fatal consequences.

316. *Animal.*] Wolves are almost the only beasts of prey in this kingdom, the breed of which, on account of the number of mountains, has never been totally exterminated. Black cattle, mules, and other tame animals, common to the European climates, are plentiful in Spain. The Spanish sheep are a treasure in themselves, their wool being the finest in the universe; the number of their shepherds is computed to be forty thousand. The Andalusian horses are the most celebrated for beauty of any in Europe. Wild bulls abound in the forests of New Castile, and give the youth an opportunity of displaying their courage and

and activity before their mistresses, as in tilts and tournaments in the romantic days of chivalry. The fights of the cavaliers, or bull feasts, a diversion attended with circumstances of uncommon barbarity, and suited only to the taste of the Gothic ages, is of moorish original; it is now happily become obsolete, but was once so prevalent, that every town of any note is furnished with a large square or circus for the purpose of exhibiting bull fights; and so fond are they in some places of this diversion, that in the smallest villages they will procure a cow or ox by subscription, and fight them, riding on asses, if they cannot procure horses. It would be well if other countries were clear of the inhuman practice of torturing this very useful part of the creation. With equal cruelty, though with less hardness and courage, the poor bull is baited and torn in our islands. Fowls, wild and tame, and the various species of those animals called game, are excellent and numerous in Spain, and the Spanish seas and rivers are plentifully stocked with fish.

317. *Fossils and Springs.*] Spain abounds in metals and minerals, but its ancient celebrity, for gold and silver mines, is now no more; whether their veins were exhausted, or the natives, too indolent to work them, is altogether uncertain. Most of their mountains have mines of quicksilver, copper, lead, and iron, which last is esteemed next to that of Damascus. Great quantities of marble, jasper, alabaster, jet, agate, cornelian, garnets; and sometimes diamonds, emeralds, and amethysts are found here. They have likewise a great plenty of calamine, sulphur, alum, and other minerals.

The medicinal waters of Spain are little known, they are frequent in Granada, Seville, and Cordova, but not much resorted to.

318. *Mountains.*] The mountains of Spain are numerous; the most remarkable are the Pyrenean, on the frontiers of France; they are near two hundred miles long, and have only five narrow passages over them; the Cantabrian mountains appear to be a continuation of the Pyrenees and reach the Atlantic Ocean south of Cape Finisterre. Mount Calpe now called the Hill of Gibraltar, and anciently one of the pillars of Hercules, is sufficiently known. But of all others Montserrat is most extraordinary; at a distance the mountain appears like an infinite number of rocks cut into a conical form, and piled upon one another to a prodigious height; on a nearer view, each cone composes a mountain of itself, and the whole occupies an extent of about fourteen miles in circumference. As it is in form dissimilar to any other mountain, it is unconnected with any. It stands on a vast plain about thirty miles from Barcelona, and has been thought to be so admirably adapted for contemplation and retirement, that for many ages it has been the habitation of monks and hermits, who vow never to forsake it. On the mountain stands a convent to which pilgrims resort from the most distant Romish countries. The poor who call there are fed three days gratis, and the sick relieved from the hospital. On particular festivals several thousand persons arrive in a day, who, pay according to the circumstances for what accommodations the convent can afford. A number of hermitages are cut out on different parts of the mountain, all of which have their little chapels, and are generally furnished with

Small gardens. The hermits have an annual meeting, when they receive their sacrament from the hands of the mountain vicar, and afterwards dine together; but at other times they live in a very reclusive and solitary manner, perform various penances, and adhere to the most rigid rules of abstinence. They are prohibited from keeping any living creature within their walls, that their attention may not be diverted from divine contemplation by the exercise of any earthly affection.

319. *Rivers, Lakes.*] The principal rivers in Spain are the Duero, the Tajo, or Tagus, of the ancients, famed for it's golden sands in their days; the Guadiana, which in it's course runs a considerable way under ground and again emerges; the Guadalquivir or Turio, and the Tago. The Tinto, however, is the most remarkable, it's waters are of a topaz hue, and, as they glide along, indurate the sand and pebbles in a surprising manner. Not a plant grows on it's banks, nor a shade of verdure is seen within it's reach, nor have any fish ever been found in it's stream. Every species of animals, except goats, refuse to drink of it, though it's water does not appear to contain any noxious quality, and is much celebrated for destroying worms in cattle. These singular properties, however, are entirely lost before it reaches the sea, by the influx of various rivulets, a considerable distance from it's mouth.

The lakes in Spain, particularly that of Benevento, abound with various excellent species of fish; and the water of a lake near Antequera, on being evaporated by the heat of the sun, leaves a crust of salt.

320. *Commerce, Manufactures.*] Such immense treasure is derived from Spanish America, that this nation makes gold and silver the chief branches of it's imports and exports. Cochineal, also indigo, saffron, sugar, tobacco, logwood, and every other valuable article which that quarter of the globe produces, form the cargoes of the homeward-bound galleons or flotas. The chief manufactures of Spain are silk, wool, iron, copper, and other hardwares; but such is the general indolence and inactivity of the natives, that they are totally unable to supply their colonies with the commodities of their own manufactures; the English, French, Dutch, and several other nations carry on this lucrative but contraband trade in Spanish bottoms, and are sheltered under the name of Spanish factors; Cadiz is the chief emporium for this species of commerce; to this place the bullion of America is imported, and from thence exported to the other nations of Europe.

321. *Curiosities, natural and artificial.*] The principal natural curiosities of Spain have been told in the description of it's mountains and rivers. At Aigeira is a very deep and extensive cavern, with curious crystallizations or petrifications; but the echo in this cave is the most amazing: travellers of veracity have affirmed that the report of a pistol will be reverberated in it for the space of seven minutes.

In several parts of Spain are the remains of Roman and Moorish antiquities. Near the city of Salamanca are the ruins of a Roman way; near Segovia is a grand aqueduct, erected by Trajan, which extends over a deep valley between two hills, and is supported by a double

row of a hundred and seventy-two arches; at Toledo are the remains of an old Roman theatre; and at Cordova is an edifice which was formerly a mosque, but is now converted into a Spanish congregation house, and is said to be one of the wonders of the world, it is six hundred feet in length, five hundred in breadth, and of a proportionate height; the roof, which is amazingly bold and lofty, is supported by three hundred and fifty pillars of fine marble in ten rows, forming eleven aisles, in which are three hundred and sixty-six altars, and twenty-four gates, every part being enriched and adorned with the most grand and costly ornaments: at Granada is to be seen great part of a most magnificent palace belonging to the Moorish kings, the inside is overlaid with jasper and porphyry, and the walls contain many Arabic inscriptions; the whole edifice is executed in the Gothic taste.

322. *Religion, Language.*] The profession of the church of Rome is the national establishment of Spain. The horrors of the inquisition blacken the annals of this country; but by a late edict its severity have been considerably moderated.

The Spanish language, except in the terminations, and some extraneous words introduced into it by the Moors and Goths, bears a strong affinity to the Latin, and is one of the most lofty and expressive tongues in Europe.

323. *Schools, Literati, Artists.*] Besides several academies, there are twenty-four universities in Spain, the chief of which is Salamanca founded by Alphonso king of Leon, in the year 1200, containing twenty-one colleges, some of them magnificently beautiful, where the sons of their principal nobility are sent for their education. The other universities, which contain nothing very remarkable, are as follows: Seville, Granada, Compostella, Toledo, Valladolid. Alcala, Sigüenza, Valencia, Lerida, Huesca, Saragossa, Tortosa, Ossuna, Oviedo, Candia, Barcelona, Murcia, Taragona, Baeza, Avila, Oriuela, and Oviedo.

The Spaniards, at a very early period, cultivated learning; after the Saracens had settled in this kingdom, they introduced into it their language, religion, and literature, and the eastern style of composition was generally adopted. At that time the attachment to oriental literature was so great, that it entirely superseded the Roman; many natives of Spain could write Arabic with the utmost purity, though there was scarcely a man who understood Latin. The Spaniards, about that period, were distinguished by their literary abilities, and, under the sanction of government, they established schools at Seville, Granada, and Toledo, where they taught the Hebrew tongue, and other branches of learning, with singular success and approbation.

Among the literati of Spain we may reckon the Trobadores, who place the Spanish writers place as high as the twelfth and thirteenth centuries, when the Provençal and Galician dialects were generally prevalent. The fourteenth and fifteenth centuries produced several learned and celebrated poets; particularly the Marquis of Villena, Juan Mena, Juan de la Encina, Boscan, Ercilla, and Villegas; and

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Ximenes, Calderoni, Lopez de Vega, Cervantes, Tostatus, Herrera, De Solis, Feyjoo, and Munoz, are also celebrated for erudition or parts.

The palaces of Spain, particularly the Escorial, and other public buildings, shew the Spaniards to have been eminent as architects and sculptors; their pictures also shew the excellence of their painters. Among the most eminent of their artists are Velasquez, Murillo, Rebeira and Claudio Coello, and the names of many others are absolutely unknown. MENGES was in the service of the King of Spain, while he executed some of his best works.

324. *History, Government.* | Spain, the ancient Iberia or Hesperia, was at an early period in the hands of the Carthagenians, and continued so till the Romans dispossessed them of all that they held in this country. It continued a Roman province till the destruction of that empire, when it was seized by the Goths, Vandals, Alans, and Suevi; and from hence the Vandals passed over into Africa. In 711, the Saracens from Africa invaded Spain, and overrun the whole country. In 718, Pelayo began to recover part of Spain from the Saracens or Moors; others of the Spaniards followed his example, every general setting himself up for a sovereign, till after many wars and mutual conquests the separate interests were united by the marriage of Isabella, Queen of Castile, to Ferdinand King of Arragon, in 1479; and finally the Moors and Jews, amounting to 170,000 families, were expelled the kingdom.

The successor of Ferdinand was the celebrated Charles the Fifth; under his reign, the dominions of the kingdom of Spain were prodigiously enlarged, and its ancient liberties were entirely subverted. His son Philip the Second was the most powerful and politic monarch in Europe. But he wasted the vital strength of the monarchy in vain efforts to aggrandize and enlarge it. France rose into more than equal competition with Spain, in the reign of his successor. Exhausted by its American dominions, enfeebled and humbled by its pride, annoyed by the genius of Richieu and Mazarine, above all, wasted by the long contest with the revolted Dutch and Portuguese, the Spanish monarchy gradually declined, in the three subsequent reigns, into the most languid imbecility. Charles the Third of Spain dying without children, bequeathed his dominions to a son of the royal family of France. All Europe was, for more than twenty years, engaged in a series of contests for the succession to the Spanish monarchy. Lewis the Fourteenth, at last, succeeded in establishing his grandson on the Spanish throne. But the Spanish dominions were dismembered by wars with Austria and England. The French sovereigns of Spain recovered from the former, Italian principalities to their younger son, and defended their American dominions from the encroachments of the latter. Arts, industry, and science, have at length begun to be revived in Spain. But, it may be difficult to encourage their progress, without occasioning a subversion of the ancient constitution. The example of the French Revolution and the influence of the French councils and arms have been, with difficulty, hindered from revolutionizing Spain. Such revolution, though hitherto averted, may soon, perhaps, take place.

SECTION.

SECTION XXXVIII.

Portugal.

Portugal is bounded on the north and the east by the kingdom of Spain; on the south and west by the Atlantic Ocean. It extends from thirty-six deg. fifty min. to forty-three deg. N. lat. and from seven to ten deg. W. long.

325. *Divisions.*] This kingdom is usually divided into three parts, viz. the northern, middle, and southern provinces.

	<i>Provinces.</i>	<i>Chief Towns.</i>
The North division contains	{ Entre Minho, Douro. Tra los Montes	{ Braga. Oporto, Viana. Braganza. Miranda, Villa Real
The Middle division contains	{ Beira. Estremadura.	{ Coimbra. Guarda. Lisbon. St. Ubes, Leira.
The South division contains	{ Entre Tajo. Alentejo, or Guadiana. Algarva.	{ Eborá, or Evora Portalegre, Elvas, Bira. Faro, Tavora Silves Lagos.

326. *Climate, Soil, and Produce.*] The climate of Portugal is in general much more temperate than that of Spain, because of it's vicinity to the sea; and the air of Lisbon in particular is esteemed so gentle and salubrious, that consumptive patients, from the most distant European countries, frequently try it as their last resource. But though the temperature of the climate be superior to that of Spain, the soil is by no means so fertile, which obliges the Portuguese to import the greatest part of their corn. The fruits are similar to those of Spain, but their flavour is not quite so delicious.

327. *Animals.*] The coasts of Portugal produce abundance of excellent fish; and the land is equally well stocked with quadrupeds and fowls, both wild and domestic. The mules in this country are extremely serviceable both for draught and carriage; and the horses though slightly made, are spirited and lively.

328. *Mountains, Mines, and Springs.*] The mountains of Portugal are generally very rocky; the principal are those which divide Algarva

XXIV. The social guarantee consists in the action of all, to secure to each the preservation of his rights.—This guarantee rests on the national sovereignty.

XXV. The social guarantee cannot exist, if the limits of public function are not clearly determined by the law, and if the responsibility of all public functionaries is not secured.

XXVI. The sovereignty resides in the people; it is one and indivisible, imprescriptible, and inalienable.

XXVII. No portion of the people can exercise the power of the whole: but each section of the sovereign assembled ought to enjoy the right of expressing its will in perfect liberty.

XXVIII. Every individual who arrogates to himself the sovereignty, or who usurps the exercise of it, ought to be put to death by free men.

XXIX. A people have always the right of revising, amending, and changing their constitution. One generation cannot subject to its laws future generations.

XXX. Every citizen has an equal right of concurring in the information of the law, and in the nomination of his mandatories or agents.

XXXI. Public functions cannot be considered as distinctions, or rewards, but as duties.

XXXII. Crimes committed by the mandatories of the people and their agents, ought never to remain unpunished. No one has a right to pretend to be more inviolable than other citizens.

XXXIII. The right of presenting petitions to depositaries of public authority belongs to every individual. The exercise of this right cannot, in any case, be forbidden, suspended, or limited.

XXXIV. Resistance to oppression is the consequence of the other rights of man.

XXXV. Oppression is exercised against the social body, when even one of its members is oppressed. Oppression is exercised against each member, when the social body is oppressed.

XXXVI. When the government violates the rights of the people, insurrection becomes to the people, and to every portion of the people, the most sacred, and the most indispensable of duties.

THE CONSTITUTIONAL ACT.

Of the Republic.

Article 1. The French republic is one and indivisible.

Of the Distribution of the People.

2. The French people is distributed, for the exercise of its sovereignty, into primary assemblies of cantons. 3. It is distributed, for administration, and for justice, into departments, districts, and municipalities.

Of the State of Citizens.

4. Every man, born or domiciliated in France, of the age of twenty-one years complete; every foreigner, of the age of twenty-one years

years complete, who domiciliated in France, for one year, lives in it by his labour; or acquires a property; or marries a French woman; or adopts a child; or maintains an aged person; finally, every foreigner, who shall be judged, by the legislative body, to have deserved well of humanity, is admitted to the exercise of the rights of a French citizen. 5. The exercise of the rights of a citizen is lost, by naturalization in a foreign country; by the acceptance of functions or favours, flowing from a government not popular; by condemnation to punishments, infamous or afflictive, till recapacitation. 6. The exercise of the rights of a citizen is suspended, by the state of accusation; by a judgment of contumacy, as long as that judgment is not annulled.

Of the Sovereignty of the People.

7. The sovereign people is the universality of French citizens. 8. It nominates directly its deputies. 9. It delegates to electors the choice of administrators, of public arbitrators, of criminal judges, and judges of appeal. 10. It deliberates on laws.

Of the Primary Assemblies.

11. The primary assemblies are composed of the citizens, domiciliated for six months in each canton. 12. They are composed of two hundred citizens at the least, six hundred at the most, called to vote. 13. They are constituted by the nomination of a president, secretaries, and scrutineers. 14. Their police appertains to them. 15. No person can appear in them armed. 16. The elections are made by ballot or open vote, at the option of each voter. 17. A primary assembly cannot, in any case, prescribe an uniform mode of voting. 18. The scrutineers ascertain the votes of citizens, who cannot write, and chuse to vote by ballot. 19. The suffrages upon laws are given by *yes* or by *no*. 20. The will of a primary assembly is proclaimed thus: *The citizens met, in primary assembly of ———, to the number of ——— voters; vote for, or vote against, by a majority of ———.*

Of the National Representation.

21. Population is the sole basis of the national representation. 22. There is one deputy for every forty thousand individuals. 23. Each reunion of primary assemblies, resulting from a population of, from thirty-nine to forty-one thousand souls, nominates directly one deputy. 24. The nomination is made by the absolute majority of suffrages. 25. Each assembly casts up the suffrages, and sends a commissioner for the general casting up, to the place pointed out as the most central. 26. If the first casting up does not give an absolute majority, a second vote is proceeded to, and the votes are taken for the two citizens, who had the most voices. 27. In cases of equality of voices, the eldest has the preference, either to be on the ballot, or elected. In case of equality of age, lot decides. 28. Every Frenchman, exercising the rights of citizen, is eligible through the extent of the republic. 29. Each deputy belongs to the whole nation. 30. In case of the non-acceptance, resignation, forfeiture, or death of a deputy, he is replaced by the primary assemblies, who nominated him. 31. A deputy, who has given in his resignation, cannot quit his post but after the admission of his successor. 32. The French people assemble every year on the 1st of May for elections. 33. It proceeds in them, whatever be the number

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SECTION XXXIX.

Italy.

Italy, including Sicily, lies between thirty-seven and forty-seven deg. N. latitude, and between seven and nineteen deg. E. longitude. Towards the east, south, and west, it is washed by the Adriatic and Mediterranean seas; and on the north, it is separated from the rest of Europe by the Alps.

335. *Divisions.*] The Italian states, dissimilar to those of Holland and Switzerland, have distinct forms of government, trade, and interests; they are not cemented by any political confederacy, to which every member is accountable.

*Countries.**Chief Towns.*

The King of Sardinia holds

PIEDMONT.

Turin, Pignerol, Carignan, Verceil, Masseran
Ivrea, Asti, Susa, Saluzzo, Coni, Pragelas
or Cluson, Tende.

MONTFERRAT.

Casal, Alby, Aquì.

Part of MILAN.

Tortona, Alexandria, Laumello.

SARDINIA I.

Cagliari, Oristagni, Sassari, Castel Aragonese.

The Dominions of the King of Naples are

NAPLES.

Naples, Capua, Gaëto, Benevento, Salerno, Bo-
jano, Cerenza, Cosenza, Rhegio, Aquilla,
Chieti, Manfredonia, Bari, Otranto, Brundisi,
Tarento.

SICILY.

Palermo, Messina, Catania, Syracuse, Noto.

ISLANDS of

Lipari, Strombulo, Rotte, Panaria, Elicusa,
Capri, Ischia, Ponza, Pianosa, &c.

The House of Austria possesses

MILANESE.

Milan, Pavia, Novara, Como, Lodi, Cremona.
Mantua.

MANTUA.

TUSCANY.

Florence, Sienna, Pisa, Leghorn, Piombino.

In Tuscany, Lucca is a republic, and Massa
Carrara a principality; and the coast del Pre-
fidii, of which the capital is Orbitello, is sub-
ject to the King of Naples.

The Duke of PAR-
MA's Territories.

Parma, Placentia, Guastalla, Castiglione, Luz-
zara.

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GENOESSE

GENOESE Territories.	Genoa, Savona, Vado, Noli, Final, Albenga, St. Remo, Ventimiglia, Monaco, Rapallo, Levigna, Spezia,
ONEGLIA.	Is subject to the French.
The Duke of MODENA'S Territories.	Modena, Mirandola, Rhegio, Borsello, Carpi
VENETIAN Territories.	Venice, Padua, Verona, Brescia, Crema, Bergamo, Vincenza, Rovigno, Treviso, Belluno, Aquileia, Udia Capo de Istria.
POPE'S Dominions.	Rome, Tivoli, Fregcati, Ostia, Albano, Viterbo, Civita Vecchia, Bracciano, Castro, Orvieto, Aquapendente, Spoleto, Narni, Terni, Perugia, Ancona, Loreto, Urbino, Pesaro, Senigallia, Ravenna, Rimini, Bologna, Ferrara, Comachia, (St. Marino, a republic.)

The Knights of St. John of Jerusalem possess

MALTA I.

Malta or Valetta.

336. *Climate, Soil.*] Italy is of a kindly soil and climate, and produces not only the necessaries, but comforts, of life in great abundance each district possessing some peculiar excellency, and affording some valued commodity: however, the choicest wines, fruits, and oil, are among the most general productions; but, notwithstanding this abundance, the natives in general are far from being happy in their circumstances, extensive tracts of land lying uncultivated, and the air itself being considerably affected by the nature of the soil. The Campagni di Roma, in particular, which the ancient Romans esteeme peculiarly salubrious, is now become almost pestilential, from the decrease of population, and the relaxation of industry. The air, however, in the northern parts of the country, particularly among the Alps, and in their vicinity, is cold and wholesome; and, in other parts, the sea-breezes refresh the natives, and mitigate that intenseness of heat, which might be expected from its southern situation.

337. *Animals, Vegetables.*] The animals found in Italy, are the same in general with those of France, Switzerland, and Germany.

The vegetables are corn, rice, olives, grapes, oranges, lemons, citrons, pomegranates, almonds, mulberries, figs, peaches, nectarines, apricots, pears, apples, filberts, chefnuts, &c. Some of the mountains are covered with aromatic herbs, trees, shrubs, and evergreens, as thyme, lavender, laurel, bays, wild olive-trees, tamarinds, juniper, oaks, and pines. Calabria, in Naples, produces a sort of ash, from which flows that well-known drug, called manna; the cork-tree is also a native of Italy; and truffles grow here naturally in as great plenty as mushrooms with us.

338. *Mountains, Mines, Springs.*] The most remarkable mountains in this country are the Alps and Apennines; the other mountains are Mons Massicus, Monte-Nova, Masso Monte, Garo, Monte Barbaro, St. Angelo, and the volcanos of Ætna, Vesuvius, and Stromboli.

Many of the mountains produce emeralds, jasper, agate, porphyry,

lapis lazuli, and other valuable stones. Mines of iron and copper have been discovered in a few places; and a mill for forging these metals has been erected near Tivoli, in the kingdom of Naples. Some of the Italian islands are said to contain mines of gold, silver, lead, iron, sulphur, and alum, though, in general, they are much neglected, and curious crystals and corals are found on different parts of the coast; beautiful marble of almost every species is also very plentiful.

Mineral springs of various qualities abound in different parts of Italy.

339. *Rivers, Lakes.*] The principal rivers of Italy are the Po, the Adige, the Arno, and the Tiber.

The principal Italian lakes are the Maggiore, Lugano, Como, Isco, and Garda, in the north; and the Perugia, or Thrasimene, Bracciana, Terni, and Celano, in the interior parts.

340. *Commerce, Manufactures.*] Italy was long the most commercial nation of Europe; its manufactures are various, and its trade in general may yet be pronounced to be in a very flourishing condition. It exports a great variety of the choicest wines and fruits, but silks are the greatest articles of its commerce. Very capital annual fairs are held at Alessandria, Cremona, Bergamo, Breschia, Verona, Reggio, and Placentia; to which foreigners, as well as natives of each of the above places, resort.

341. *Curiosities.*] Italy affords an ample field of entertainment for every description of curiosi.

The various reliques, which superstition accounts of inestimable worth, abound in this land.

The burning mountains, the variously-impregnated waters, the mephitic air of the Grotto Del Cani, into which the poor dogs are forced, where they suffer a sort of temporary death, for the entertainment of passengers: these, and a variety of other natural curiosities, induce the attention and researches of the philosopher.

The artist finds here the most beautiful and elegant models, both ancient and modern; the architecture, the medals, the statuary, the paintings fill him with enthusiasm.

But chiefly the historian and the antiquary, in this classic land, find a profusion of their precious remains of antiquity. Not a mountain rears its head, nor a river glides along, but has been celebrated by the ancients in song; ruins of former magnificence lie scattered over the grounds; and spots, heretofore rendered desolate and desert from the ravages of war are, at this day, still more solitary and waste from indolence and monastic vows.

Through every state of Italy the most superb remains of architecture may be traced, which indicate the grandeur of the ancient Romans. The Appian, Flaminian, and Æmilian roads, the first two hundred, the second one hundred and thirty, and the third fifty miles in length, are still in many places entire. Magnificent remains of columns, porticoes, amphitheatres, circi, villas, temples, palaces, reservoirs, bridges, and triumphal arches, present themselves to the inspection of the curious traveller; and, with the stupendous subterranean cloacæ and catacombs, in the vicinities of Naples and Rome,

furnish monuments of the extreme skill and persevering industry of the ancient inhabitants of this country.

But so indifferent are the modern Italians in general about objects of antiquity, that the ancient city of Pœstum, or Posidonia, in the kingdom of Naples, was accidentally discovered by a painter's apprentice within the present century. Inexhaustible mines of curiosities, however, are daily appearing among the ruins of Herculaneum, a city lying between Naples and Mount Vesuvius, which was nearly destroyed by an earthquake, in the reign of Nero; and in the first year of that of Titus totally overwhelmed by a stream of lava from the neighbouring volcano, which, in its progress, filled up the streets, and overtopped the houses in some places to the height of sixty-eight feet, and in others one hundred and ten. Pompeia was also involved in the same destruction. In these subterranean cities entire streets, shops and houses are discovered, and temples, statues, busts, pillars, paintings, furniture, and various utensils; a prodigious number of manuscripts also, which, however, it takes a tedious process to unroll, but in which it is expected many of the lost works of the ancients may be restored. From the very few skeletons found in this city, it appears that the inhabitants had generally escaped.

342. *Religion, Language.*] The Romish profession is universally established throughout Italy: however, the inquisition is very much circumscribed, and persons of other persuasions live unmolested here. The government of the church of Rome is centered in the pope and cardinals; the established number of the latter is seventy, but it is seldom complete. The conclave is an assembly of all the cardinals on urgent occasions, particularly at the election of a pope; the consistory, an assembly of the pope and cardinals.

The Italian language is originally derived from the Latin, with the intermixture of words from the Goths, Huns, Vandals, and other conquerors of Rome, and is remarkable for its smoothness; almost every separate state, however, and, indeed, sometimes the separate streets of the same city have different dialects; but the unwearied pains taken by the literary societies of this country may probably, at last, fix the Italian into a standard language. The Tuscan style and manner of composition seem, at present, in the highest estimation.

343. *Literati, Artists, Schools.*] In Italy learning is now successfully cultivated, and this country formerly produced several great geniuses; Galileo, Torricelli, Malpighi, Borelli, Strada, Fra, Paoli, Guidobaldi, Bentivoglio, Davila, Machiavel, Tasso, Ariosto, Sannazaro, Fracastorius, Bembo, Vida, and Metastasio, were all natives of this country; as were Cicero, Virgil, Horace, Sallust, Livy, Tacitus, Seneca, Julius Cæsar, Plautus, Terence, &c. in antiquity.

The painters, sculptors, and architects of Italy, have hardly been equalled by those of any other nation. Raphael, Titian, Julio Romano, Corregio, Caraccio, Veronese, and many more have excelled in the first of these professions, as Michael Angelo has in all the three. Bramante, Bernini, with several more of their countrymen, carried sculpture and architecture to a great degree of perfection; and the

Antiquities of this country may serve to shew the superior excellence of the ancients in the fine arts.

There is in Italy a multiplicity of academies and literary societies, besides the universities of Rome, Venice, Florence, Mantua, Padua, Parma, Verona, Milan, Pavia, Bologna, Ferrara, Naples, Pisa, Salerno, and Perugia.

344. *History, Government.*] Italy was inhabited in antiquity successively by the Umbri, the Pelasgi, and the Hetruscans. The imperial Rome, founded about 753 years before the Christian era, after many revolutions of government, and many civil and foreign wars, had, on the coming of Jesus, extended it's empire over the greatest part of the known world; but the Roman power declined greatly in the western part of the world, upon the removal of the seat of empire to Constantinople; and accordingly the imperial city, from the year 410, through some centuries, underwent the revolutions and ravages of the Goths, Vandals, &c. in common with the other western nations of Europe.

Italy was subjected to the empire of Charlemagne, and all the Italian princes were from that time, at least, nominally feudatories of the German-Roman empire. Rome acquired, in the splendid days of the Papacy, by it's artifices and arms, a considerable extent of possessions in the Italian territory. Venice, Genoa, Florence, and other free towns, which were created by the trade of the Mediterranean and of the Northern Seas, gained considerable immunities and a wide extent of lands. Princes, the immediate vassals of the empire, remained masters of the rest of Italy. In the progress of so many centuries, most of the principalities became the immediate property of princes of the houses of Spain and Austria. Florence, and some others of the free towns, shared the same fate. Others still maintained their republican independence. The papacy preserved it's territories. Various invasions convulsed and distracted Italy for a time, but still left the general arrangement of dominion nearly such as it had been before. At last, the French, in the fervour of revolutionary heroism, penetrated across the barriers of Italy. The King of Sardinia became, from their arms, first their humble ally, and afterwards a fugitive from before their arms. All the Austrian dominions received their yoke. They formed a Cisalpine Republic. They made themselves fraudfully masters of Rome; then sacked and pillaged it. They conquered Naples; they threatened Tuscany. But the joint arms of Russia and Austria again prevail. The Cisalpine Republic is already abolished. Rome is retaken. The French maintain, with extreme difficulty, a narrow and uncertain footing in Italy.

SECTION XL.

Turkey in Europe.

The Grand Seignior's dominions are not confined to one quarter of the world, some of them being situated in Europe, some in Asia, and others in Africa.

European Turkey is situated between seventeen and forty degrees of east longitude, and between thirty-seven and forty-nine degrees north latitude. It is bounded by Russia, Poland, and Sclavonia on the north; by Circassia, the Black Sea, the Propontis, Hellespont, and Archipelago on the east; by the Mediterranean on the south; and by the same sea, together with the Venetian and Austrian territories on the west.

345. *Divisions.*] Turkey in Europe, lying in the most genial climates, contains some of the most fertile provinces in the world. It is divided as in the following table.

<i>Provinces.</i>	<i>Chief Towns.</i>
CRIM and LITTLE TARTARY,	} Precop, Bachiseria, Kassa.
BUDZIAC TARTARY.	
BESSARABIA,	Oczakow.
MOLDAVIA,	Bender, Belgorod.
WALLACHIA,	Jazy, Chotzim.
BULGARIA,	Tergovisc.
SERVIA,	Widin, Nicopoli, Silistria, Scopia.
BOSNIA,	Belgrade, Semendria, Nissa.
ROMANIA,	Seraio.
MACEDONIA,	Constantinople, Adrianople, Philippopoli.
JANNA,	Strymon, Contessa.
LIVADIA.	Salonichi.
EPIRUS,	Athens, Thebes, Lepanto.
ALBANIA,	Chimæra, Butrinto, Scodra.
DALMATIA,	Durazzo, Dulcigno, Drino.
RAGUSA,	Zara, Narenza.
CORINTHIA,	Ragusa, a republic.
ARGOS,	Corinth.
SPARTA,	Argos, Napoli de Romania.
OLYMPIA,	Misitra, formerly Lacedemon.
ARCADIA,	Olympia, or Longinica.
ELIS,	Modon, Coron.
	Patras, Elis, or Belvidere.

The islands of European Turkey are Negropont; Lemnos; Tenedos; Scyros; Lesbos, or Myteline; Scio, or Chios; Patmos; the Cyclades, Dalos; Paros; Cerigo, or Cytherea; Santorin; Rhodes; Candia; Cyprus; and the islands in the Ionian Sea, viz. Sapienza; Strivali; Zante; Cephalonia; Santa Maura; Corfu; and Isola del Compace; the ancient Ithaca, famous for being the kingdom of Ulysses, and several others of inferior note.

346. *Climate, Soil.*] The air of Turkey in Europe is naturally extremely salubrious, and friendly to the human constitution; but, from the want of cultivation, and the indolence and uncleanness of the Turks in their manner of living, the plague frequently makes dreadful ravages; though the Mahometan doctrine of fatality, and the prevalence of custom, render the natives, in general, very unconcerned about it. The soil being universally fertile, all the necessaries, and many of the luxuries of life, are equally good and cheap. The seasons are regular and pleasant, and no country in the world abounds more in pure and salubrious waters, which invite the Turks to frequent ablutions, as well on account of pleasure as religion.

347. *Vegetables, Minerals, and Animals.*] Where the smallest degree of industry has been exerted, the soil is prolific to excess; and, exclusive of corn, wine, oil, garden, and pot-herbs in the utmost abundance, this country produces, in amazing perfection, oranges, lemons, citrons, pomegranates, figs, almonds, coffee, olives, and cotton. Besides these valuable productions, it affords many drugs not common in other European countries; nor are the bowels of the earth deficient in metals and minerals. At Potyfoli, in Macedonia, there are mines of gold and silver; and Greece affords iron, lead, the most beautiful marbles, alum, and sulphur.

Theffalian, or Turkish horses, are both beautiful and serviceable, and the black cattle, especially in Greece, are large and excellent. The goats are extremely valuable to the natives, both on account of their milk and flesh. The large eagles, which abound in the vicinity of Badadagi furnish the best arrow feathers for the Turkish and Tartarian archers, and they are accordingly sold at an immense price. Partridges are very plentiful, as well as most other European fowls, and quadrupeds, both wild and domestic. The rivers abound in fish, but the Mahometans seem by no means partial to the use of animal food.

348. *Mountains, Waters.*] The mountains in this country are some of the most fruitful and celebrated of any in Europe. Mount Athos stands on a peninsula running into the Ægean Sea; the Mounts Pindus and Olympus, celebrated in Grecian fable, divide Theffaly from Epirus. Parnassus, famous in poetry for being consecrated to the Muses, is well known, as well as Mount Hermus; but most of the other mountains, and indeed some of these, have changed their names.

The principal seas are the Euxine, or Black Sea; the Paulus Mæotis, or Sea of Asoph; the Sea of Marmora; the Archipelago; the Ionian Sea, and the Levant; the Straits of the Hellespont and Bosphorus, are famous in modern as well as in ancient history.

The chief rivers in European Turkey, are the Danube; the Save; the Neister; the Dneiper, or Boristhenes; and the Don, or Tanais; with several others, which, though of inferior consideration, have been highly celebrated by poets and historians.

The most remarkable lakes are Lago di Scutari, in the province of Albania, Lago di Plave, and Lago di Holti. The Stymphalis, in the province of Morea, was famous for it's harpies, and ravenous birds; and the Peneus, for being the source of the river Styx, celebrated by the ancient poets.

Mineral springs and baths, both hot and cold, are numerous in Turkey.

349. *Trade.*] Commerce and manufactures are but little regarded among the Turks. Tyre, Sidon, and Alexandria, with all those countries which were in possession of the commerce of the ancient world, are now enveloped in indolence and ignorance. The Turks command the navigation of the Red Sea, which opens a communication to the Indian Ocean; but they do not avail themselves of this opportunity of opening a trade with the wealthy nations of the East; and their capital, Constantinople, is situated on a narrow strait, which separates Europe from Asia, rendering an intercourse with the other parts of the world not only practicable but easy; yet the Mahometans, disregarding these combined local advantages, and, chewing of opium to the ruin of their constitution, dose away life in stupid inactivity.

This empire produces all the commodities necessary for the most extended plan of industry and commerce. The Turks, however, alike averse to mental and corporeal exertions, content themselves with manufacturing cottons, carpets, leather, and soap, but export the most valuable of their commodities, such as silks, drugs, and dyeing stuffs, in their natural state, without improving their value by labour. The internal commerce of the empire, which is extremely contracted, is principally carried on by Jews and Armenians. In their traffic with the rest of Europe, the Turks are entirely passive in the navigation; the English, French, Dutch, and other maritime powers, resorting thither with their commodities, and bringing back those of Turkey in their own bottoms; indeed, the Turks themselves (excepting a fleet of armed gallies) are possessed only of a few coasting-vessels, which never attempt any distant voyages.

350. *Curiosities.*] European Turkey, particularly Greece, may be considered as the storehouse of antiquities, and may, as well as Italy, be called classic ground: here the mountains and rivers, as well as the magnificent remains of the works of the ancients, claim, from their celebrity in Grecian song, the attention of the antiquary.

The temple of Minerva at Athens, the temple of the eight winds and the lantern of Demosthenes, are still entire. The ruins of Neptune's temple, and the theatre where the Isthmean games were celebrated, are still visible on the Isthmus of Corinth; as are the ruins of the temple of Apollo, at Castri. On the south of Mount Parnassus are some marble steps that descend to a running water, supposed to be the celebrated Castalian spring; and the niches in the rock, where

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statues were formerly placed, are still discernible; and in Livadia, the ancient Bœotia, the famous oracular cave of Jupiter Trophonius, cut out of a rock.

351. *Language, Learning.*] The radical languages of this empire are the Sclavonian, the Greek, the Arabic, and the Syriac; all which are, in a manner, blended in the present dialect.

Learning is at a very low ebb among the Turks, who, in general, express the most sovereign contempt for it. Greece was once the nursery of genius, arts, and sciences; and produced, in sculpture, Phidias, Polycletus, Myron, Lysippus, Praxiteles, and Scopas; in painting, Apollodorus, Zeuxis, Parrhasius, Pamphilus, Timanthes, Apelles, Aristides, and Protogenes; in poetry, Homer, Eschylus, Sophocles, and Euripides; in prose, Herodotus, Xenophon, and Isocrates, Thucydides, and Demosthenes; and in the more severe exercises of mathematics and philosophy, Pythagoras, Euclid, Archimedes, Socrates, Plato, Aristotle, and Xenophon. This ancient seat of learning now produces a numerous tribe of bishops, priests, and monks; but, in general, they are as ignorant as the Turks themselves, whose education seldom extends farther than the reading of their native language and the Koran. There are, however, some schools, colleges, and academies, both of Turks, Jews, and Greeks. Some years ago a printing-house was opened at Constantinople, where books of all kinds were allowed to be printed, except on matters of religion; and even some of the Turks understand so much of astronomy as enables them to calculate an eclipse; but the number is very small, and they are generally regarded as persons of extraordinary sagacity.

352. *Profession.*] The Turks universally agree in the general belief of Mahomet's divine legation, but are divided into as many different sects as the professors of Christianity. The chief ecclesiastic, who is called the Mufti, (signifying an expounder of the law) is of such dignity, that, whenever he comes into court, the emperor himself rises from his seat, and advances to meet him.

On pecuniary conditions, other professions are tolerated in Turkey; and Jews, Greeks, Armenians, with other professions of Christianity, are numerous. (See Art. 136.)

353. *History.*] In European Turkey is included the place of the ancient states of Macedon and Greece. These celebrated people, their politics, and revolutions, were, on the commencement of the Christian era, lost in the general conquests of the Romans. To the last remains of the Greek, or Eastern Roman empire, the Turks put an end by the conquest of Constantinople, in 1453.

After making themselves masters of Constantinople, they continued to prosecute their wars against the Christians, till they had driven the Italians from almost all the isles in the Mediterranean sea. Towards Germany, they long contended with the most formidable efforts, to break through the territories of Hungary, Poland, and the other contiguous Christian states, and to overrun the western provinces of Europe. Against the Tartars and Russians they were long victorious. With the Persians they had frequent wars, with various successes. The Egyptians and the Arabs received their yoke. The Abyssinians dreaded

dreaded their encounters. But, their military and their ecclesiastical institutions began, at last, to lose their energy. Their ill-compacted empire began to break down by its own weight. The strength of Russia has, in the course of the present century, become far too powerful for the Turks. The Turkish empire seems to totter to its fall. Its subjects are, in many places, ripe for revolution. Its military arts have not kept pace in improvement, with those of surrounding nations. The revolutionizing French have attacked it as a ready prey. The Russians, its ancient enemies, are now its defenders. It is scarcely possible that the Turkish empire should not, amidst all this, experience some great revolution.

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P A R T VII.

DESCRIPTION OF ASIA.

ASIA is remarkable for being the principal scene of Hebrew history; it was here, according to their chronology, that the human race first had their beginning, and after the deluge, it became a second time, the nursery of mankind; it was here the sciences and arts had their origin; here the first empires and kingdoms were founded, empires now forgotten, but which in their day lorded it over the rest of the world; and here churches were first gathered in the Christian name.

This distinguished quarter of the globe is remarkable for the serenity of it's air, and the richness and fertility of it's soil, which brings forth the most delicious fruits and fragrant plants, spices, gums, and balsams in exuberant profusion. In the description of the patriarch Abraham sitting in the tent door in the heat of the day, and lifting up his eyes, and looking, there seems a natural representation of the manners of the Asiatics at this day: rest they love, and in this they indulge; such are the manners of the southern inhabitants. Those on the north are more hardy and alert. The native of Siberia, wrapped up in furs, and drawn by his dogs over immeasurable tracts of snow, and the roving Tartar on his fleet and active steed, scouring along the desert, are in manners and way of life, a contrast to those who recline at their ease, under the cooling verdure of the south, or riding in state on the towering elephant, by the spreading umbrella evade the scorching rays of the sun. (See Sect. XI.)

Various forms of idolatry, and the doctrines of Mahomet spread over this extensive continent. It's languages are the Arabic, Persian, Malayan, Chinese, Japanese, Tartarian, Russian, and Turkish.

Asia is bounded on the west by the Red Sea, the Mediterranean or Levant, the Archipelago, the Black Sea, and Europe; on the north by the Icy Sea; on the east and south by the Pacific and Indian Oceans. It is situated between twenty-five, and one hundred and eighty degrees of east longitude, extending from the equator to the Frigid Zone, and is about four thousand eight hundred miles in length, and four thousand three hundred in breadth. It contains the following nations.

Countries.	Length.	Breadth	Chief Cities.	Latitude.	Longitude from Greenwich.	
					in Degrees.	in Time.
	miles	miles		D. M. S.	D. M. S.	H. M. S.
Independent Mogulean Chinese Russian	undefined, and as variable as the Tartars are extensive.		Samarcand Tibet Chynian Tobolski	39 50 0 N. 37 — — N. 48 — — N. 58 12 18 N.	69 0 — E. 8 — — E. 12 — — E. 68 12 45 E.	4 36 — bef. 5 40 — bef. 8 4 — bef. 4 38 41 bef.
Perfia	1300	1100	Ispahan	32 25 0 N.	52 40 0 E.	3 31 20 bef.
India	2000	1000	Siam or Pegu	14 18 0 N.	100 50 0 E.	6 43 20 bef.
Mogul's Empire	2000	1500	Delhi	28 20 — N.	79 25 — E.	5 16 — bef.
China	1440	1260	Pekin	39 54 30 N.	116 14 15 E.	7 45 37 bef.
Turkish Empire in Asia includes the following :						
Georgia	210	140	Teflis	43 0 — N.	46 15 — E.	3 10 — bef.
Turcomania	360	300	Erzerum	39 56 35 N.	48 35 45 E.	3 14 23 bef.
Diarbec or Mefopotamia	560	310	Bagdat	33 20 0 N.	43 46 30 E.	2 55 6 bef.
Natolia	750	308	Burfa or Smyrna	38 28 7 N.	35 20 0 E.	2 21 20 bef.
Palestine	210	90	Jerusalem	31 55 8 N.	27 19 45 E.	1 49 15 bef.
Syria	270	160	Aleppo	35 45 23 N.	37 20 0 E.	2 29 20 bef.
Part of Arabia	1300	1200	Mecca	21 45 — N.	40 55 — E.	2 52 — bef.

ASIATIC ISLANDS IN THE INDIAN AND PACIFIC OCEANS.

Names.	Chief Towns.	Claimed by, or trading with,	Names.	Chief Towns.	Claimed by, or trading with.
New Holland,	Sydney Cove.	English.	Gilolo,	Gilolo,	Dutch.
Kurile Islands,	No Town.	Russians.	Borneo,	Borneo, Cay-tongee,	Open Trade.
Japan,	Jeddo,	Dutch.	Sumatra,	Achen, Ben-coolen,	Dutch and English.
Ladrone Islands,	Guam,	Spaniards.	Java,	Batavia, Bantam,	Dutch.
Formosa,	Tai ouan fou,	Chinese.	Andaman,	Andaman,	Open Trade.
Phillipines,	Manilla,	Spaniards.	Nicobar,	Nicobar,	Open Trade.
Molucca,	Victoria Fort,	Dutch.	Ceylon,	Candy,	Dutch.
Banda,	Lantor,	Dutch.	Maldives,	Caridon,	Open Trade.
Amboyna,	Amboyna,	Dutch.	Bombay,	Bombay,	English.
Celebes,	Macassar,	Dutch.			

New Guinea, New Britain, New Ireland, New Hebrides, New Caledonia, New Zealand, are uncolonised ; and the Friendly, Society, and Sandwich Islands, are but late discoveries.

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354. D.

Prov.

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SECTION XLI.

Turkey in Asia.

Asiatic Turkey is about one thousand miles in length from east to west, and in breadth about eight hundred, from it's northern extremity to where it mixes with the Arabian Deserts. It has the Black Sea and Circassia on the north; Persia on the east; Arabia and the Levant Sea on the south; and the Archipelago, Hellespont, and Propontis on the west, which separate it from Europe. It is situated between the twenty-seventh and forty-fifth deg. east longitude; and between the twenty-eighth and forty-fifth deg. north latitude.

This country was the principal scene of scripture history in antiquity, and, in later times, of those romantic expeditions, the crusades.

354. *Divisions.*] It has been divided as in the following table.

<i>Provinces.</i>	<i>Chief Towns.</i>
EYRACO ARABIC OR CHALDEA.	Bassora, Bagdat.
DIARBEK OR MESO-POTAMIA.	Diarbec, Orfa, Mouful.
TURCOMANIA OR ARMENIA.	Erzerum, Van.
CURDISTAN or AS-SYRIA.	Ninive, Betlis.
GEORGIA, including MINGRELIA, IMARETTA, and part of CIRCASSIA,	Amarchia, Gonie. Georgia hath claimed independence, and put itself under the protection of Russia.
NATOLIA.	Bursa, Nici, Smyrna, Ephesus.
AMASIA.	Amasia, Trapezond, Sinope.
ALADULIA.	Ajazzo, Marat.
CARAMENIA.	Satalia, Teraffo.
SYRIA with PALESTINE.	Aleppo, Antioch, Damascus, Tyre, Sidon, Tripoli, Scanderoon, Jerusalem.

The climate, soil, air, produce, animals, commerce, manufactures, language, and profession of religion, in this country are much the same as in European Turkey.

355. *Mountains, Minerals, Waters.*] The mountains and rivers of this country are celebrated in the most ancient history; among the former are Olympus, Taurus, Anti-Taurus, Ida, Caucasus, Arrarat, Hermon, and Lebanon; of the latter are the Euphrates, the Tigris, the

the Orontes, the Meander, the Sarabat, the Kara, and the Jordan; the lakes are the Gaul-bughaw or Van, in Turcomania; the Aschane, or Acfis, near the town of Nice; and the sea of Gallilee, or lake of Tiberias.

In the different divisions of Asiatic Turkey all manner of metals and minerals are found, and almost every kind of precious stones, emeralds in particular, of peculiar beauty, lustre, and size. This country also abounds with medicinal springs and baths.

356. *Curiosities.*] If we except the particular spots celebrated in ancient history, the curiosities of this country consist chiefly in ancient ruins, especially those magnificent ones of Balbec and Palmyra. At Jerusalem they pretend to shew the exact places where the particular actions and sufferings of Jesus happened, though it is well known that even the city itself does not stand on the same spot of ground it did at that period: and the places that have been signalized or rendered memorable, as the scenes of the most important events, with whatever enthusiasm they may be resorted to by pilgrims or devotees, the convents, chapels, and temples, which Monkish zeal may have erected over them as ornaments, must, in the eye of the philosophic antiquary appear as deformities, and as despoiling the places of ancient history of their former simplicity, and contradicting their description.

357. *History.*] Asiatic Turkey has undergone a part of the most remarkable revolutions that have happened in the world; for it has all, or part of it, been in subjection successively to the Assyrians, Babylonians, Medes, Persians, Macedonians, Romans, Saracens, Tartars, and Turks. Absolute despotism is the constitution of Turkey. Its fate has been the same with that of the Turkish empire in general, which was sketched above.

SECTION XLII.

Tartary.

The vast regions of Tartary, taken in their full extent, stretch from Muscovy on the west, to the Pacific Ocean on the east; and from the nations of China, India, Persia, and Turkey on the south, to the impenetrable frozen regions of the northern pole. It lies on the north of the thirtieth deg. north latitude, and extends from fifty to one hundred and ninety deg. east longitude. Its grand divisions are Russian, Chinese, Mogulean, and Independent Tartary. The boundaries of this country, which is almost, or perhaps altogether as extensive as the whole of Europe, and inhabited by Tartars of many different descriptions,

scriptions, and unknown extent, that divides themselves from China, which the lakes they are described in, the geographers breadth two

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Provinces
Kamtchatka
Jakutskoi.
Bratki.
Thibet and
Mongul Tartary
Samoieda.

359. *Climate*
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animals, cold

The mountains
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bears, wolves
and lakes abun-

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Kamtchatka
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The principal
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and the Kolyma

361. *Tartars*
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and leather,
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scriptions, are but incorrectly defined by geographers, they are often unknown even by the neighbouring nations. The line, for instance, that divides Muscovy from Tartary, is not known even to the Russians themselves; the same may be said of the boundaries that separate it from China and Persia: the truth is, those parts of the country through which the lines of division pass, are very thinly, if at all, inhabited; they are desert and waste, and therefore of very little value. It's dimensions, therefore, and divisions, are rather involved in obscurity; but geographers have made them as follows; length four thousand miles, breadth two thousand four hundred.

358. *Divisions.*]

<i>Provinces.</i>	<i>Towns.</i>	<i>Provinces.</i>	<i>Towns.</i>
Kamtschatka.	Petropaulouski.	Ostiak.	Kortskoi.
Jakutskoi.	Jakutskoi.	Circassian and	Terki.
Bratski.	Bratski.	Astracan Tartars.	Astracan.
Thibet and	Poion.	Siberia.	Tobolskoi.
Mongul Tartars.	Kudak.	Kalmuc and	Bokharia.
Samoieda.	Mangafia.	Usbec Tartars.	Samarcand.

359. *Climate, Soil, Animals.*] The soil of this extensive country varies from spontaneous fertility, on it's southern confines, to where it is stiffened in frigidity on the north; and it's climate or air, and it's animals, correspond with the variety.

The mountains, woods, and deserts of Tartary abound in various kinds of deer and wild fowl. Here are likewise wild mules and horses, camels, dromedaries, wild boars, tigers, leopards, goats, foxes, bears, wolves, lynxes, and a variety of other animals; and the rivers and lakes abound both in fish and fowl.

360. *Mountains, Rivers, &c.*] The principal mountains are those of Caucasus in Circassia, which extend from Asia Minor, through the north part of Persia, as far as the Indies and the burning mountains of Kamtschatka. The mines in Siberia are said to contain gold, silver, iron, copper, lapis lazuli, jasper and loadstones.

The principal rivers are the Wolga, the Oby, the Genesfa, or Jenska, the Lena and Argun. The principal lakes are the Baikal, the Kisan and the Kologal.

361. *Trade.*] The principal articles of commerce, with the few Tartars who trade, are skins, beavers, drugs, and fish. The natives of Astracan, however, carry on a considerable traffic with the Persians in red leather, woollen and linen cloth, &c. and the court of Russia has sent among them some French refugees and other mechanics and husbandmen, to instruct them in the culture of vines and mulberry trees, for the establishing a silk manufacture, and the making of wines.

Since the banishment of Swedish and Russian prisoners into Siberia, some manufactures have commenced there.

362. *Manners, Language.*] The manners, the professions of religion, and the languages of the Tartars are various. The Manchew language is thought by the Tartars to be the most elegant and copious in the world. (See Art. 131.)

363. *Curio-*

363. *Curiosities.*] In some of the deserts of Tartary, almost inaccessible, some spacious edifices have been discovered almost covered with the sand, and in these have been found urns, lamps, statues, armour, trappings for horses and elephants, and of manuscripts some thousands of volumes. These may shew that Tartary has not always been unacquainted with sciences and arts. Zinghis Khan and Tamerlane, those dreadful ravagers of the earth, and destroyers of the human race, and their early descendants, were famous for their learning. Bokharia and the neighbouring provinces then formed the seat of literature, politeness, and luxury.

364. *History.*] But little is known of the state of Tartary in antiquity, when it was called by the name of Scythia. In the beginning of the thirteenth century, Jenghis Khan, of the tribe of the Mongols in Mogulestan, carried the ravages of war through almost all the countries of the east; and after him Tamerlane, in the latter end of the fourteenth century, spread his conquests over a principal part of Asia.

The Tartars are partly in subjection to the Turks or the Russians, in part independent. Even where in subjection, they scarcely own the restraints of regular government. The free Tartars are still a great pastoral nation. The milk of mares and the flesh of horses, with meal of millet seed, constitute their principal food. France, under its old government, endeavoured to maintain an amicable correspondence with the Tartarian Cham, that it might occasionally let loose his hordes upon the Turks or Russians. It seems probable that the gradual civilization of the Russian empire may at last reduce the Tartars to the settled life of husbandmen, artificers, and merchants. The Tartar tribes are distinguished as the greatest of Asiatic conquerors. But they have been continually embodied with the nations which they subdued.

SECTION XLII.

China.

The great empire of China lies on the eastern borders of the continent of Asia, and is divided from Chinese Tartary on the north by a prodigious wall, and in some places by inaccessible mountains; on the east it is bounded by the Yellow Sea, and Pacific Ocean, which separates it from America; on the south by the Chinese Sea and the kingdom of Tonquin; and on the west by Tibet, between which and China, vast deserts and mountains intervene.

365. *Divisions.*] It is situated between twenty-one and forty-four deg. north latitude, and ninety-four and one hundred and thirty-three deg. east longitude.

Provinces.

Provinces.

Nioche,
Corea.
Loatonge.
Pekin.
Xanfi.
Xenfi.
Fokien.
Canton.
Quamfi.

The Chinese
Islands.

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Provinces.	Towns.	Provinces.	Towns.
Niuche.	Niuche.	Xantum.	Chinchis.
Corea.	Petcheo.	Nanking.	Nanking.
Loatonge.	Chinyam.	Chekiam.	Nimpo, Chufan.
Pekin.	Pekin.	Honan.	Honan.
Xanfi.	Tayen.	Huquam.	Toangfu.
Xenfi.	Sigan.	Kiamfi.	Nankan.
Fokien.	Fochen, Amoy.	Suchuen.	Tchinteu, Queyang
Canton.	Canton.	Quechen.	Quechen.
Quamfi.	Quelin.	Yunnan.	Yunnan.

The Chinese Islands are Formosa, Ainan, Macao, and the Bushee Islands.

366. *Climate, Soil.*] As this extensive country lies under a variety of climates, the air is very different. The south of China is exposed to tropical heats and periodical rains, while the rivers of the north are generally frozen for some months during the winter. The intervening parts are temperate and pleasant. The soil is likewise equally variable, though every part of the country is fertile, either from nature or indefatigable industry. The lands are very flat in many places; and, as the Chinese delight in plains, they have levelled, with great labour, many spots among the mountains. In those provinces which are least fertile, the mountains are clothed with abundance of fine trees, which, by means of rivers and canals, are conveyed to every part of the empire.

367. *Plants, Animals.*] China produces corn, and a variety of grain, particularly rice, in the culture of which the Chinese are very curious, as they are likewise in that of cotton, from which two articles the chief of them are clothed and fed; teas, sugar, tobacco; and fruits, as apples, pears, apricots, peaches, figs, grapes, especially excellent muscadines, oranges, pomegranates, pine-apples, olives, medicinal herbs and roots, and many others, to which we are strangers; canes, junks, bamboos, the pea-tree, pepper-tree, varnish-trees, the tallow-tree, white wax-tree, oil-tree, banana-tree, the mango, and many others, whose perpetual bloom, unfading verdure, and odoriferous scents, would render them the admiration of the finest European gardens.

The animals of this country are elephants, camels, horses, oxen, mules, sheep, hogs, tigers, leopards, bears, boars, buffaloes, a variety of deer, among which is the odoriferous roebuck, so called from its having a bag of very strong musk; and a very small stag, kept in gardens for their extraordinary beauty, with a great number of other animals.

The birds are eagles, cranes, storks, the birds of paradise, golden pheasants, pelicans, peacocks, pheasants, geese, swans, ducks, and a numberless variety of others.

Most of the fish common in Europe are found here, besides several of an extraordinary fine flavour, and vast magnitude, wholly unknown among us. The yellow fish, caught in the river Yang-tse-kiang is of an exquisite taste, and some of them are eight hundred pounds weight.

Those beautiful little creatures, the gold and silver fish of China abound here in the ponds of the curious.

The shining beauty and diversity of colour in their insects baffles description, and the women fix them, by way of ornament, on their heads; but the most profitable are their prodigious numbers of silk worms and bees. They have another valuable species of insects which prepare a wax more beautiful than that of bees, and quite transparent.

368. *Mountains, Mines, and Springs.*] In China Proper there are four mountains, but in the following provinces they are extremely numerous: Yunnan, Kœi-tcheiou, Se-tchuen, Fo-kien, the west part of Tcho-kiang, and the inland parts of Quang-tong and Quang-si, the province of Kiangnan, and the great district of Hœi-tcheou, are rendered a most uninhabitable from their amazing numbers and height.

These mountains abound with various metals and minerals, among the former of which are several mines of gold and silver, but, from political motives, they are not much worked; great numbers of people however, entirely subsist by gathering the particles of the gold, that are washed down from the mountains. Here are likewise mines of copper, some of which are white, lead, iron, and quicksilver, great quantities of porphyry, and quarries of the finest marble, rock crystal, and asbestos: pit-coal is dug in great plenty, as well as loadstones, cinnamon, vitriol, alum, lapis lazuli, and a kind of jasper.

Medicinal waters, both hot and cold, abound in China, and there are several curious springs, which regularly ebb and flow. The waters of a lake in the island of Haynan are said to be so greatly saturated with petrifying particles, that all bodies, even fishes, lose their original nature, and are converted into stone.

369. *Rivers, Lakes, Canals.*] The rivers of China are the Kiang or Blue River; the Hoambo, or Yellow River; the Xo, whose waters are supposed to cure divers diseases; the Kin-xa, or Golden River, so named from the great quantity of gold-sand it contains; the Yamour; the Argun; and a number of others.

The lakes are numerous, two of the principal among them are Pe Kiang and Sihü.

But the canals are most extraordinary: by means of these the lakes and navigable rivers, throughout all the parts of this extensive empire for thousands of miles, have a communication with each other, and the waters seem alive with the multitudes of vessels, barges, and boats on their surface.

There is scarce a city or village in China, especially in the southern provinces, but enjoys the benefit of some navigable river, lake, canal, or arm of the sea; so that almost as many people reside on the water as on the land. Wherever there is a town on shore there is another on the water, and many people are born, live, and die there, hogs, poultry, dogs, and other domestic animals being kept on boats as on shore.

Besides these vessels, there are a prodigious number of floats of timber perpetually passing up and down the rivers and canals, which carry a prodigious number of people upon them. Some of these floats are

mile in length they live till sometimes in

The canals of this country of China is in danger, through the country

and lower inclined plane formed: the boats, in descent to the funnel tend so rapid or passage, the boatmen, as lower to a

370. Considerable trafficking ready money own. The factured silk lackered-wa the name of

371. Curable volcanoes China from thousand five high, and without the small one thousand posed chiefly tar, as seems by towers, given by the Tartars

In the plain the extraordinary gains their revenue

Over the arch, whose and it connects the province abreast, and trailing, and avoid all the by beams, but rests upon stone hung over a appears a still Chinese bridge

mile in length, and the proprietors build little huts upon them, where they live till they have disposed of their timber, which they carry sometimes in this manner a thousand miles.

The canals of Europe appear diminutive, when compared with those of this country. In some provinces, however, the inland navigation of China is very incomplete, and attended with great trouble and danger, through their ignorance of the contrivance of locks. Where the country is not quite flat they must have, as with us, their upper and lower canals; the bottom of the passage between these, is an inclined plane of hewn stone, of which also the sides of the canal are formed: the water pours rapidly down this sluice or passage, and boats, in descending from a superior to an inferior canal, are abandoned to the fury of the current, notwithstanding the danger that must attend so rapid a passage. On the other hand, in ascending this sluice, or passage, they are dragged up by main force; four or five hundred boatmen, assisted by capstans, being necessary to draw a barge from a lower to a higher canal.

370. *Commerce and Manufactures.*] The Chinese carry on a considerable traffic with the European nations, with whom they deal, for ready money, despising the manufactures of every country but their own. The articles exported from thence are raw silk, cotton, manufactured silks, gold and silver stuffs, painted gauzes, teas, china-ware, lackered-ware, paper, and the ink which is well known to us under the name of Indian ink.

371. *Curiosities.*] Among the mountains of China are some remarkable volcanos and waterfalls. The celebrated wall, which divides China from Tartary, is carried over mountains and valleys; it is one thousand five hundred miles long, from twenty to twenty-five feet high, and sufficiently broad for six horsemen to travel abreast, without the smallest inconvenience. Though this wall has stood more than one thousand eight hundred years, it is still pretty entire, being composed chiefly of bricks, and built with such a strong cement, or mortar, as seems to bid defiance to the ravages of time; it is strengthened by towers, gates, and bulwarks; and, before the conquest of China by the Tartars, was usually garrisoned by a million of soldiers.

In the plains, the canals are a wonderful improvement, and bespeak the extraordinary diligence of the people; among the rocks and mountains their roads are still more astonishing.

Over the river Saffrany there is a bridge, consisting of a single arch, whose span is four hundred cubits, and it's height five hundred, and it connects two mountains. The Cientao, or road of pillars, in the province of Xensi, is sufficiently broad for four horses to travel abreast, and near four miles in length; it is defended by an iron railing, and unites the summits of several mountains, in order to avoid all the devious windings to the capital; it is partly supported by beams, but in most places, from the great depth of the valleys, it rests upon stone pillars of a tremendous height. The bridge of chains hang over a frightful valley, in the neighbourhood of King-tung, appears a still more extraordinary kind of communication. Some of the Chinese bridges are built upon barges, chained together in such a man-

ner as to separate at pleasure, and let vessels pass them. The bowels of some of the mountains are penetrated with spacious caverns, and others have roads cut through them of considerable length. (See Art. 132.)

The triumphal arches in China, erected in memory of their great princes, legislators, philosophers, &c. are said to be one thousand one hundred, of which two hundred are remarkably magnificent. And superstition has erected to fabulous deities pagodas, or temples, even in the most arid deserts, and on the most barren mountains, with incredible labour and expence. Before the gates of every great town there are likewise beautiful towers of a similar construction. Of all these towers that of Nan-king claims the pre-eminence. it is called the Porcelain Tower, being wholly covered with the most beautiful china, which still retains it's original beauty, though it has stood near four hundred years. The tower is built in an octangular form, and is nine stories high; between every story there is a kind of pent-house, shed, or projecting cornice, on the outside of the tower, on the corners of which are hung little bells, which jingle with the wind. This tower, from the ground to the top of the ball which terminates it, is near three hundred feet high, each story decreasing in breadth as it rises in height; and the whole forms an elegance of appearance beyond any ancient or modern piece of architecture to be met with in the east.

The fire-works of the Chinese exceed those of all other nations both in beauty and variety.

372. *Language, Learning.*] The language of the Chinese consists only of three hundred and thirty words, which are all monosyllables, at least they are pronounced so short, that there is no distinguishing above one syllable or sound in them; but the same word, as expressed with stronger or weaker tone, has different significations; accordingly when the language is accurately spoken, it makes a sort of music, which has a real melody, that constitutes the essence and distinguishing character of the Chinese tongue. The characters of the Chinese are as singular as their language; they have not like us, any alphabet containing the elements, or, as it were, the principles of their words. Instead of an alphabet, they use a kind of hieroglyphics, whereof they have above eighty thousand; every one of these characters signifies a word, or a whole sentence, but their most learned men are hardly masters of them all: those, however, in common use do not exceed three thousand, which are understood in every part of the empire.

Learning is essentially necessary to qualify a man for every public employment, and the only means of advancement in this part of the world; it is not therefore to be wondered that the Chinese, in their skill in the sciences, their researches and acquirements, were superior to every other distant nation that the Europeans have visited.

There are a vast number of public libraries in China, each of which contains prodigious quantities of books; in every city there are colleges and observatories; and to watch the heavens, both night and day constitutes one of the chief employments of their learned. They have recorded an eclipse, which happened 2155 years before the Christian

era; but even they have them in regular mathematical

373. *Religion.* Improved cultivation in their several they also were but never fully acknowledged

The empire the Dalai Lama, the worship of the nation, and perhaps, however sublime doctrine the Chinese principle, and the disciples the exercise by the innumerable in the expression

374. *History.* Like other ancient the internal have for 1000 Tartars, by conquerors, finally subdued. Their conquest the Chinese The Chinese the encroachment, military preservative sent a magnificent course, their to watch the and to return after, following generation, as therefore, of the empire most astonishing industry and occurred to science, and easy alphabet civilization

era; but eclipses and comets are the principal phenomena of which they have any account till much later periods. The Jesuits assisted them in regulating their calendar, and from them much of their present mathematical knowledge is derived.

373. *Religious Professions.*] Various forms of idolatry deform this improved country. Their deities appear to have been men eminent in their several ages, particularly the inventors of arts and sciences; they also worship things inanimate, as mountains, woods, and rivers: but never sacrifice to vice, as is customary with most Pagans, and they acknowledge one Supreme Being.

The emperor, being of the Tartar race, follows the worship of the Daly Lama. There are three other sects in China, viz. the followers of Li-Laokun; the disciples of the celebrated Confucius; and the worshippers of the idol Fo, or Fohi, the founder of the Chinese nation, and this sect is much more numerous than the former two. Perhaps, however, it would hardly be the part of candour to rank the sublime doctrines of Confucius with the gross and idolatrous tenets of the Chinese; he taught that God was a most pure and perfect principle, and the fountain and essence of all beings; he enjoined on his disciples the strictest morality, a disregard of riches and pleasure, and the exercise of every virtue: and this great and good philosopher, by the innocent sanctity of his manners, recommended his precepts in the expressive language of conduct, which speaks louder than words.

374. *History.*] This empire is certainly of very great antiquity; but, like other ancient nations, has been aggrandized by fables. Besides the internal revolutions that have happened among the Chinese, they have for 1000 years back, at different periods, had contests with the Tartars, by whom they were finally subdued in 1645, and their conquerors, since that period, have commixed with those whom they subdued. Since that era, the Tartars have been incorporated with their conquerors. Christianity, though once extensively received in the Chinese empire, has been, since, in a great measure, proscribed. The Chinese have guarded, with a wise and jealous vigilance, against the encroachments of the Europeans in the East. Science, superstition, military force, and the prejudices of antiquity, are the great preservatives of the stability of their empire. When Britain lately sent a magnificent embassy, to open with them a commercial intercourse, their jealousy of the British greatness in the East induced them to watch the motions of the embassy with very vigilant inspection, and to retain them under great restraint. A Dutch embassy, soon after, following the British, approached the Chinese with a servile veneration, as if they had gone to bear the homage of slaves, and were, therefore, more acceptable than the British. In the immense extent of the empire, the ambassadors both Dutch and British, discovered the most astonishing diversities of manners, cultivation, natural scenery, industry and trade, prosperity, and decay. But all that they saw concurred to convince them, that nothing was wanting but European science, and the European means of communicating knowledge, by an easy alphabet, and through the channel of the press, to raise Chinese civilization to a wonderfully perfect state. It is probable, that an ea-

sier and more free communication may be at length opened between China and Europe. They saw the grossest abuses in the administration of the Chinese government.

SECTION XLIV.

India.

All the islands in the Indian Ocean, and many in the Pacific, with the whole coast of Asia, from Arabia to where it borders upon Japan, are sometimes included under the general name of the East Indies; and under the distinct title of India, or Hindoostan, is comprehended an extensive country, bounded on the north by Tibet and Usbeck Tartary; on the south by the Indian Ocean; on the east by China and the Pacific; and on the west by the Indian Ocean and Persia. It is situated between one and forty degrees of north latitude, and between sixty-six and one hundred and nine degrees east longitude, comprehending the Mogul's empire, and numerous smaller kingdoms; extensive continental territories, claimed by the English East-India Company, and settlements also of other European nations.

375. *Divisions.*] This vast country is generally divided into three parts: 1. The Peninsula of India beyond the Ganges, on the east; 2. On the north, the main land, or empire of the Great Mogul; 3. On the west, the Peninsula within, or on this side the Ganges. The two latter divisions are also called the Hither India, or Hindoostan, and the other the Farther India. The divisions are all extensive, and very populous.

The Farther Peninsula

<i>Kingdoms.</i>	<i>Towns.</i>	<i>Kingdoms.</i>	<i>Towns.</i>
Acham,	Chandara.	Malacca,	Malacca.
Ava,	Ava.	Tonquin,	Cachao or Keccio.
Arracon,	Arracon.	Laos,	Lanchang.
Pegu,	Pegu.	Cochin China,	Thoanoa.
Martaban,	Martaban.	Cambodia,	Cambodia.
Siam,	Siam.	Chiampa.	Padram.

MOGUL'S EMPIRE.

<i>Provinces.</i>	<i>Towns.</i>	<i>Provinces.</i>	<i>Towns.</i>
Bengal,	Calcutta,	Multan,	Multan.
English,	{ Fort William,	Kaican,	Kaican.
	{ Huegly.	Cabul.	Cabul.
	{ Dacca.	Candish,	Medipour.

English

English and Dutch,	{ Malda.	Berar.	Berar.
Naugracut,	Chatigan.	Chitor.	Chitor.
Jesuat,	Cassumbazar.	Ratipor,	Ratipor.
Patna,	Naugracut.	Narvar,	Narvar.
Necbal,	Rajapour.	Gualeor,	Gualeor.
Gore,	Patna.	Agra,	Agra.
Rotas,	Necbal.	Delly,	Delly.
Soret,	Gore.	Lahor, or Pencah,	Lahor.
Jessilmere,	Rotas.	Hendowns,	Hendowns.
Tata, or Sinda,	Jaganal.	Cassimere,	Cassimere.
Bucknor,	Jessilmere.	Jengapour,	Jengapour.
	Tata.	Asmer, or Bando,	Asmer.
	Bucknor.		

*The Hither Peninsula.**Coasts.**Chief Towns.*

COROMANDEL.

Madura, Tanjour, Trincombar, Danes.—Negapatan, Dutch.—Bisnagar, Portanova, Dutch.—Fort St. David, English.—Pondicherry, Conymere, French.—Coblon, Sadrasapatan, Dutch.—St. Thomas, Portuguese.—Fort St. George, or Madras, English.—Pellicate, Dutch. Golconda, Gani, or Coulor diamond mines.—Massulaparan, English and Dutch.—Vizacapatan, English.—Binlipatan, Dutch.—Orixa, Ballasore, English.

MALABAR.

Tegapatan, Dutch.—Angengo, English.—Cochin, Dutch.—Callicut, Tellicherry, English.—Cananore, Dutch.—Monguelore, Bassilore, Dutch and Portuguese.—Raalconda diamond mines. Cawar, English.—Goa, Portuguese.—Rajapore, French.—Dabal, English.—Dundee, Shoule, Portuguese.—Bombay, English.—Bassaim, Salfette, Daman, Portuguese.—Surat, Swalley, Barak, English and Dutch.—Amedabat, Cambaya, Diu, Portuguese.

Polygamy, the doctrines of Mahomet, and various forms of idolatry deform many parts of this land. In the European settlements Christianity is professed. Each of the numerous kingdoms of India are governed by one, and sometimes more kings, or princes, who exert the most despotic power over their subjects.

376. *Climate and Soil.*] The air in the northern parts of India is very dry and healthy, but in the southern provinces, especially in the valleys and low lands near the sea, and rivers, it is very hot and moist. In some places they are obliged to erect their houses upon high pillars, to secure them from the floods during the rainy season, at which time they have no communication with each other but by boats; and such storms of wind, thunder, and lightning happen about

the equinoxes on the shifting of the monsoons, as are seldom seen in Europe. The year is not divided into summer and winter, as with us, but into the dry and wet seasons, or into the easterly and westerly monsoons. The monsoons are periodical winds, which prevail in these tropical climates; during our summer they blow from the north-east; and during our winter again from the south-west. When the storms cease, which take place upon their changing, there are sea and land breezes near the coast, which shift every twelve hours.

The soil is in general exceedingly fertile, especially those parts that are overflowed by the floods, which, like those of the Nile, are periodical, and enrich the grounds with the mud and slime they deposit on their surface.

377. *Plants, Animals, Minerals.*] India produces corn, rice, pepper, and a variety of garden plants and drugs; pomegranates, tamarinds, citrons, dates, grapes, almonds, guavas, cocoa-nuts, plums, plantains, mangoes, pine apples, lemons, oranges, limes, melons, jaccas, mulberries, and a variety of apples, pears, and other fruits; sugar-canes, cotton, indigo, &c.

The quadrupeds are elephants, rhinoceroses, camels, dromedaries, horses, asses, mules, oxen, and buffaloes; tigers, lions, leopards, wolves, jackals, musk cats, very large bats, apes, and monkeys; red deer, fallow deer, elks, antelopes, sheep, goats, kids, hogs, hares, &c. birds of the most beautiful plumage embellish the forest. The rivers abound in fish, but many of them are greatly infested by crocodiles. Serpents and scorpions abound in every part of India; and musketoes, locusts, and other insects of a similar nature, are very troublesome to the inhabitants. The mines yield gold, diamonds, rubies, topazes, amethysts, beryls, asterias, or cats' eyes, and other precious stones, or gems. Travellers inform us, that mines of lead, iron, copper, and even silver, are found in Hindoostan; and quarries of stone are in great plenty.

378. *Mountains, Rivers.*] The most remarkable mountains in India are those of Caucasus, which divide it from Usbeck Tartary, and those of Naugracut, which separate it from Tibet; besides these, there are chains of mountains, on both peninsulas, running from north to south, almost the whole length of the country. On the Hither, or Western Peninsula, it is summer on one side of these mountains when it is winter on the other. Thus a south-west wind prevails for months on the coast of Malabar, attended by prodigious and constant rains, while the weather is serene on the coast of Coromandel on the east; and when, on the change of the monsoon, no vessel dare venture to stay on the coast of Coromandel, they periodically return to Bombay on the west.

The principal rivers, in the Farther India, are the Domea, the Meçon, the Menan, and the Ava; in the Hither India, are the Indus and the Ganges. The Indians are persuaded, that the Ganges does not take it's rise from the bosom of the earth, but descends from Heaven into the paradise of Devendre, and from thence into Hindoostan; they therefore hold it's waters in the greatest reverence, crowding in multitudes from the remotest parts of the country to wash in them; they think themselves favoured by Heaven if they are permitted to expire on it's banks; and he who accidentally meets death by it's

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waters, is not only supposed to have been himself purified from sin, but that even his surviving family participate in the blessing, and they are ever after treated with peculiar marks of respect and regard. Such are the mistaken notions of that poor harmless race, the Hindoos, or Gentoos; their priests are the Bramins, the followers of the celebrated Brumma. To be a stranger among these people is a sufficient security, provisions are furnished by hospitality, and when a peasant is asked for water, he runs with alacrity, and fetches milk.

379. *Manufactures, Commerce.*] The different kingdoms and provinces of India traffic with each other, and with the neighbouring islands, the nations of China, Tartary, Persia, and Arabia; but their principal trade is with European nations. The exports are gold, diamonds, ivory, silks, muslins, chintzes, dimities, calicoes, lackered wares, and various toys, different kinds of gums, drugs, &c. From Europe are imported broad cloth, lead, flints, and cutlery wares, wrought plate, watches, and looking-glasses, with other goods of inferior value for the use of the natives.

The empire of Hindoostan, particularly the kingdom or province of Bengal, from the mildness of it's climate, the fertility of it's soil, and the industry of the Hindoos, has been always remarkable for it's commerce; every village has it's canal, every town it's river, and the whole kingdom the Ganges, which, falling by various mouths into the Bay of Bengal, opens a communication with the ocean for exporting the produce and manufactures of this famous country. While the house of Tamerlane filled the throne of Hindoostan, the balance of trade was greatly in favour of Bengal. it was at that period one of the richest, most populous, and best cultivated kingdoms in the world: the bullion it annually received from the English, Dutch, French, Danes, and Portuguese; the gold from the Gulfs of Arabia and Persia, and the treasures from the other parts of India, were prodigious. Even under the revolted viceroys it appeared superior to the partial rapine of those impolitic nabobs, who plundered the people but to squander it amongst them; and the catalogue of it's calamities seems only to have been filled by the coming in of foreigners. Since that period the troubles and civil wars, which have ravaged this kingdom, have been tragical in the extreme. The country has been depopulated, distress of every kind has succeeded to plenty and ease, many of the principal cities have been rendered desolate, the most fertile fields in the world laid waste, and near five millions of harmless and industrious people either expelled or destroyed.

380. *Languages.*] The inhabitants of Siam, in the Farther Peninsula, use two languages; the one called properly Siamese, and the other Balli; the former, which is the language commonly spoken, has thirty-seven letters; the latter, which is the learned language, or that in which their books or writings are composed, has thirty-three letters, all consonants; the vowels and diphthongs are expressed by peculiar characters distinct from the letters, as in the Hebrew. Both these languages are written from left to right, and resemble the Chinese, in being chiefly consisting of monosyllables, and having neither conjugation

nor declension; like that too, they are both highly accented, so that the delivery of them approaches nearly to singing.

The inhabitants of Malacca, in the Farther India, are accounted mere savages in their manners; yet their language is esteemed the finest in all the Indies.

The languages of Hindoostan, or the Hither India, are various but may all be included under three general heads:

The Shanscrit, an original language, intermixed with a number of words, and even phrases, from the Persian and Arabic, is universally spoken throughout the empire of Hindoostan, and is the current language of the country.

The Persian is the language of the polite circles, and prevails in most of the courts of the East, as the French does in those of Europe.

The Arabic is the learned, or, if we may be allowed the term, the classical language of Hindoostan: here, as in Persia, their records and a few books are preserved in this language. (See Art. 133, 134.)

381. *History.*] Of the ancient history of this country but little is known. Early in the thirteenth century it suffered the ravages of Jenghis Khan, and on the close of the fourteenth century was conquered by Tamerlane, or Timur Beck. The Grand Moguls, or Emperors of Hindoostan, are very emulous of tracing their descent from Tamerlane, and always pretend to reign in right of him. In 1738, Nadir Shaw, of Persia, or Kouli Khan, ravaged Hindoostan, and plundered Delhi, its capital. The Mongul empire has been since dissolved. Its great vassals have become independent princes. The Hindoo power of the Mahrattas has risen to considerable greatness. Tippoo Saib has made himself formidable to Britain. The English East India Company have become masters of a wide extent of Indian territory. Many of the native princes are their subjects, or dependant allies. They have subdued the French factories, and are now the mightiest power in Hindoostan. Their power, supported by a mercenary army, stands on a precarious foundation. Their plans of government, and their administration of justice, seem adapted to make their subjects happier than the Hindoos have been under any former dominion. Yet, it is impossible but many abuses must be committed by their servants. India is the source of a great influx of wealth into England: for the English go to India, not to settle, but to enrich themselves, that they may then return. The Dutch settlements in Java, Amboyna, and the other Spice Islands, have, in the course of the present war, been transferred, with their great agricultural establishment at the Cape of Good Hope, to Britain.

Lately a grand scheme for the subversion of the British power in India had been formed by Tippoo Saib, or Sultaun, in combination with the French. A great force of French soldiers was ready, in the service of the Nizam, another Indian prince, under the immediate command of a Mr. Raymond, to co-operate for the expulsion of the English from India. With happy promptitude, the English rulers in Hindoostan obliged the Nizam to disband his French troops; anticipated the enterprises of Tippoo; marched to Seringapatam; besieged that capital; saw Tippoo himself fallen, while he bravely fought against

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SECTION XLV.

Persia.

Modern Persia comprehends the ancient Hyrcania, Bactria, Susiana, Parthia, Media, and part of Assyria, Iberia, and Colchis. This extensive country is situated between the twenty-fifth and forty-fifth deg. N. latitude, and between the forty-fifth and sixty-seventh deg. E. longitude. It is bounded on the east, by the dominions of the Mogul, by Usbec Tartary, the Caspian Sea, and Circassia on the north; by the Indian Ocean, and the Gulph of Persia, or Bassora, on the south; and on the west by Arabia and the Turkish empire.

382. *Divisions.*]

Divisions.

Chief Towns.

EASTERN.

Mesched or Thus, Esterabad, Herat, Gafna, Candahor, Sigistan.

SOUTHERN.

Makeran, Lar, Gombroon, Ormus, Schiras.

SOUTH-WEST.

Schouster, Casbin, Ispahan, Hamadam, New Julpha, Arnova, Courmebad.

NORTH-WEST.

Tauris or Ecbatana, Ardevil, Naxivan, Teflis, Gan-gea, Terki, Ferrabat, Gilan, Rescod, Derbent, Baku.

383. *Climate, Soil.*] In those parts bordering upon the mountains, which are usually covered with snow, the air is very cold; in the mid-land provinces, it is naturally serene, pure, and exhilarating: but the hot winds, which sometimes blow over long tracts of sandy deserts from the south and east, are extremely suffocating, and a blast sometimes strikes the traveller dead in an instant.

The soil varies as much as the air, being in some parts exceedingly barren, but in others very fruitful, especially where they can turn the streams of water into the plains and valleys.

384. *Plants, Animals, Minerals.*] The animal and vegetable productions of Persia are much the same with those of India. Their sheep, however, are remarkable for having six or seven horns each, and their tails very heavy. The Persian horses are very beautiful, and high spirited.

Persia produces copper, iron, lead, antimony, sulphur, saltpetre, and emery: here are plains near twenty leagues over, covered with salt, and some with saltpetre and alum; and in some parts of Carmania in particular, the salt is said to be so hard, that the poorer sort

sort of people use it instead of stone for building their cottages. In the provinces of Fars and Skirvan, there are great quantities of bole-armoniack, and a sort of marle, used by the natives instead of soap. Near the Caspian seas, there are springs of naphtha, which frequently take fire on the surface, and in great quantities run flaming into the sea, to an almost incredible distance from the shore. There are different kinds of naphtha in Persia, the dark kind supplies the place of oil in lamps, and is used as fuel; the white sort, found in the peninsula of Apcheran, is both taken as a cordial and medicine, and used externally; it is said to be carried into India, where, being properly prepared, it makes a most beautiful and durable varnish.

The Persian marble is of various colours, and some is almost as transparent as crystal; mineral azure is also found in this country, but the most valuable mines are those in which the turquois stones are contained.

385. *Mountains, Rivers.*] The principal mountains of Persia, are those of Caucasus and Arrarat, sometimes called the mountains of Daghistan, which fill all the isthmus between the Euxine and Caspian Seas. The enormous ridge of Taurus, together with it's branches, runs through the country from Natolia to India.

There are very few rivers in Persia, but the most remarkable are the Kur, anciently Cyrus; and Aras, anciently Araxes. The Indus runs on the east, as the Euphrates and Tigris do on the west of Persia. The scarcity of water in this country has given rise to many ingenious methods of conveying it to the cities, corn fields, and gardens. Wells of a prodigious depth and breadth, are in many places dug, out of which, with the assistance of oxen, they draw up water in leather buckets, which are emptied into large cisterns or reservoirs, and conveyed off by aqueducts and canals; some of these are carried underground to the distance of twenty or thirty leagues.

386. *Manufactures, Commerce, Roads.*] The principal commodities of Persia are silks, mohair, camlets, carpets, leather, embroidery, and gold and silver laces, and threads.

Their foreign trade is carried by European ships, having few of their own; and their commerce is now almost ruined by the perpetual wars they have been engaged in, which have desolated the face of the country, and uncivilized the dispositions of the inhabitants. Formerly, great numbers of travellers, intending to journey with the merchandizes and commodities from one city or province to another, assembled socially together, and formed themselves into caravans, frequently consisting of four or five hundred persons, with a still greater number of camels and other beasts of burthen; at stated distances, they found caravanferas or inns, provided either at the public expence, or by the benevolence of individuals, for their reception, free from the expence of lodging; or they pitched their tents, which they always brought with them on these expeditions, in some verdant spot, where they might find water and pasture for their beasts, and purchase provisions for themselves. The same public attention, or private philanthropy, which provided places of rest, and fountains of water, had levelled the mountain, or raised the valley, and smoothed the road

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389. *Language* different provinces southern parts of Arabia, and

safety and convenience. But, since the civil disputes and intestine commotions have suspended the operation of the laws, and the execution of justice; since the horrors of war have ravaged the country, these advantages have considerably fallen off; the highways are neglected and infested with banditti, who seize on the caravans, and plunder them as lawful prize; the caravanferas are deserted, or become receptacles for robbers; and the fountains are dried up, or their sources choaked with the mouldering ruins.

387. *Curiosities.*] The baths near Gombroon are highly esteemed for their salutary effects; but the principal natural curiosity in this kingdom is a combustible ground, about ten miles distant from Baku, where the followers of Zoroaster perform their devotions; it is impregnated with the most amazing inflammatory qualities, and round it are several small old temples: in one of these, the votaries shew a large hollow cane stuck in the ground, out of which issues a flame resembling that of a lamp filled with very pure spirits, and this they hold to be the sacred flame of universal fire.

The most magnificent remains of antiquity in Persia, are the ruins of Persepolis, the ancient metropolis of the kingdom, consisting of superb columns, spacious staircases, grand portals, and beautiful pilasters, adorned with figures in basso-relievo. About a league distant from these ruins, is a famous mountain, situated between two fine plains. It is an entire rock, and having been levelled by art, its sides are quite perpendicular: there are various figures upon it, represented in bas-relief, and several tombs cut out of the rock, with two small edifices, and several inscriptions. These are supposed to have been the burial-places of the ancient kings of Persia; but the zeal of the Mahometans, who think it meritorious to destroy all kinds of images, and the injuries of time, have greatly defaced them.

A modern edifice, of an extraordinary kind, is to be seen at Ispahan. This is a pillar sixty feet high, erected by Shaw Abbas, after the suppression of a rebellion, and consists of the skulls of beasts. He had made a vow to build such a column of the skulls of the rebels, but, upon their submission, he substituted those of brutes, obliging each of them to furnish one.

388. *Religion.*] The profession at present established in Persia, is that of Mahomet; but they differ from the Turks, by following the sect of Ali, whom they consider as the genuine successor of Mahomet; while the Turks assert that Omar and Abu Bekr are the true successors of their prophet, and therefore charge the Persians with heresy.

But the ancient religion of Persia is the worship of the Magi, which is still professed in this empire and the Indies. The professors of it seem to have a peculiar veneration for fire, and the inflammable oil near the city of Baku, already described, is the principal scene of their devotion.

389. *Language, Learning.*] The language of Persia varies in the different provinces; the Persian is only spoken in its purity in the southern parts of the kingdom, in the city of Ispahan, on the borders of Arabia, and on the coasts which skirt the Gulf of Persia; in the parts

parts which border on the Caspian sea, the Turkish language prevails, and the provinces of Ghilan and Mazanderan use a mixture of both; but in all parts of the kingdom, public writings, records, and works of learning are in Arabic; many words of which are also used familiarly in the conversation of the polite, who still affect a sublimity of expression.

The poetical writings of the Persians are in high esteem all over the East; but their learning is at present at a very low ebb, and education so totally neglected, that persons in the higher ranks are scarcely taught to read or write. Scribes, however, are numerous, and very expert; they carry the lines, like those who write in Hebrew, from the right hand to the left. The Persian is the language of trade in Hindoostan, and other parts of the East. It is, in consequence of this, common for young Englishmen to go to Schiraz, as the Athens of Persia, to study its language.

390. *History.*] It appears from the book of Genesis, that Chedorlaomer, king of Elam, or Persia, was a powerful prince in the time of Abraham. About the time of the captivity of Israel, this country was conquered by Nebuchadnezzar of Babylon. After this, it was a province of Media, till Cyrus, under whom the Jews returned from their captivity, gained the ascendancy over the Medes, and established a great empire, which continued till it was overthrown by Alexander the Great. In 250, before the Christian era, the Persians revolted from the successors of Alexander, and founded a new empire, under the name of the Parthian. The Parthians, or Persians, had frequent wars with the Romans, but neither of them gained any permanent advantage over the other; and, in 651, an end was put to this empire by the Saracens. After this period, the country underwent a variety of dreadful revolutions, and was conquered successively by Jenghis Khan, in 1218; and by Tamerlane, in 1392. In the beginning of the fifteenth century, the family of Sophi ascended the throne, since which time the country has been harassed by civil wars. In the beginning of the present century, Nadir Shaw put the sovereign to death, ascended the throne, ravaged Hindoostan, dethroned the Mogul, and behaved with such cruelty, that, in the year 1747, his own relations and principal officers assassinated him in his tent. After his death, a number of competitors laid claim to the crown, which occasioned a horrible scene of bloodshed till 1763, when Kherim Khan, the present king, was placed on the throne; but the kingdom is still in a weak and languishing condition.

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SECTION XLVI.

Arabia.

Arabia extends from the thirty-fifth to the sixtieth deg. east longitude, and from twelve deg. thirty min. to thirty deg. north latitude. It is bounded on the north by Asiatic Turkey, on the south by the Indian Ocean, on the east by the Euphrates and the Gulfs of Bassora and Ormus, and on the west by the Red Sea.

391. *Divisions.*] It is divided into three parts, Arabia Petræa, or the Stony; Arabia Deserta, or the Desert; and Arabia Felix, or the Happy. (See Art. 136.)

*Divisions.**Chief Towns.*

PETRÆA. Suez.

DESERTA. Mecca, Sidon, Medina, Dhafar.

FELIX. Mocha, Sibit, Hadramut, Cassen, Segur, Muscat, Jamama, Elcalf, Saana, Loheia.

392. *Climate, Soil, and Vegetable Productions.*] The climate is various. The southern parts are intensely hot. The winds, which pass over tracts of sand, are penetrating and suffocating, and the sands themselves become formidable, being sometimes raised in such clouds as to bury whole caravans. In the sandy desert it scarcely rains throughout the year, but the few vegetables, which such a spot is capable of producing, depend for moisture on the copious dews which descend every night after sun-set; other parts of Arabia are refreshed with gentle rains.

Arabia the Stony is the wilderness in which the children of Israel sojourned forty years, and its different rocks and spots, and the mountains of Horeb and Sinai may be accounted curiosities, as having been the scenes of their history.

Arabia the Desert is somewhat less rocky, consisting principally of fruitless tracts of burning sands; it has, however, some spots of land covered with verdure at certain seasons of the year, and feeding numerous flocks and herds: but these are principally near the Euphrates, the only river of any consequence which waters this extensive country. There are a few others, such as the Nageiran, the Pran, and the Chaty; but these are so small, as to be at all times inconsiderable, and in the summer season they are generally dried up. The Eastern manner of travelling, in caravans especially, obtains in crossing these deserts; a frugal fare serves the camel and his rider; but water seems, above all, a necessary

a necessary supply. They seldom encumber themselves with tents, the constant serenity of the sky rendering such a precaution unnecessary. At night the camels are disposed in a circle, where they lie with their heads outwards: within them their furniture and lading are arranged in exact order; and the centre is occupied by the travellers, who, laying carpets on the sand, take others to cover them, and make a pillow of such wearing apparel as they carry with them, to change or vary their dresses. Should invaders approach, the faithful camels are instantly alarmed, and by their rising and trampling, awake the tired travellers, and put them on their guard.

Arabia the Happy is, in many places, very barren; some valleys, however, between the mountains, and a few of the plains, which are so situated as to be well supplied with water, are pleasant and fruitful, producing corn, pulse, flowers, peaches, apricots, dates, grapes, lemons, oranges, &c. in great perfection. This country also supplies Europe with great variety of drugs, such as myrrh, frankincense, balms, manna, aloes, and gum olibanum; and it produces, in great plenty, that berry which is imported into Europe under the name of Turkey coffee.

In Arabia there are mines of gold, silver, diamonds, rubies, and sardonyxes, of extraordinary beauty and colour.

The Arabs in general are a wandering people. There is, however, a considerable trade carried on from Mocha, by the English and Dutch companies that are settled there. The Portuguese carry on a trade with Moscat, and the Turks with Suez.

393. *Curiosities.*] The principal curiosities in this province are the mosques at Mecca and Medina; the former was the birth-place of Mahomet, at the latter is his tomb. To both these places great numbers of pilgrims annually resort, but more particularly to Mecca; every Mussulman being obliged to make this pilgrimage once in his life, or at least to send a deputy. The roof of the mosque at Mecca is covered with gold, and has an hundred gates. That at Medina is supported by four hundred pillars, and furnished with three hundred silver lamps, continually kept burning; and under cloths of silver and gold rests the coffin or tomb of the impostor. Christians are forbid approaching Mecca or Medina within a limited distance, on pain of being burnt alive.

394. *Religion, Language.*] The Arabians, in general, are Mahometans, but many of the wild tribes of rovers are still Pagans. Their language, which for copious and expressive elegance, has been preferred, as has been already observed, by Turks, Persians, and other inhabitants of the east, even to their own, is hardly spoken in its purity in any part of Arabia; Arabesk, or corrupt Arabic, being the common dialect of the country. The ancient Arabic, which is said to be a dialect of the Hebrew, is taught in their schools like Greek and Latin in Europe, and used by all the Mahometans in their worship: for as the Koran was originally written in that language, they will not suffer it to be read in any other; they suppose it to have been the language of Paradise, and think no man can attain a thorough knowledge of it without a miracle, it being composed of several mil-

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(See Sect. 2)

lions of words; it is said that there are in it a thousand different names for a camel, and five hundred for a lion.

395. *Literati, Learning.*] The names of Avenzoar, Avicenna, Hoinain, Mesuach, and Thograi have been eminent in physic, astronomy, and mathematics. To the Arabians we are indebted for that simple, and very elegant invention, the expressing of all possible numbers, by means of the ten digits; and indeed from them most of the literary and scientific improvements of Europe were derived; but those are now either totally lost in the land where they originated, or dwindled into blind conjecture, obscure and mysterious jargon, or superstitious prognostication. The depredations of the robbers, perhaps, more than even the deserts, render solitary and waste many parts of this land, where splendid ruins only remain as monuments of their ancient grandeur.

396. *History.*] Arabia was never yet conquered by any foreign power, though several attempts have been made for that purpose. About the year 622, the Arabians began to distinguish themselves under the name of Saracens; for Mahomet, at that time, made himself the head of a sect, which in about eleven or twelve years made themselves masters of all Arabia, and presently after extended their conquests over a great part of the world. After this, the seat of their empire was removed to Bagdat, and fell under the Turks, while Arabia underwent some internal revolutions, but retained it's independency.

397. *Islands of Asia, &c.*] The islands of Asia are the largest in the world, and they are more numerous here, than in any other quarter. Besides those, which are situated in the Indian and Chinese seas, there are also unnumbered other islands, both detached and in clusters in the great Pacific Ocean, and South Sea, some very extensive, others quite minute: the European nations but lately found them out, and have not yet attempted to colonise them. The natives are unacquainted with literature and the sciences. They are generally idolatrous, and desperate in battle. Without the use of metals, they have shewn great ingenuity in their little works of art, as in their canoes, their weapons, their clothes and utensils. These form the most modern articles in the cabinets of our curiosi, and their manners are a recent and general topic of conversation with the nations of Europe. (See Sect. X.)

P A R T VIII.

D E S C R I P T I O N

O F

A F R I C A.

AFRICA is on every side surrounded with water, except where it joins to Asia by the Isthmus of Suez. The northern parts of this peninsula, were, in antiquity, celebrated as the seats of commerce, sciences, and arts. In later days, Christian churches were also gathered here; but the doctrines of Mahomet, and various forms of idolatry now pervade the most of this quarter of the globe; and, degrading to human nature, the trafficking in men forms a principal part of the little commerce they carry on.

The greatest part of Africa lies between the tropics. The ancients imagined this part was not habitable on account of the heat; later discoveries, however, have shewn their conjectures to be erroneous. It's coasts have been distinctly described by the moderns, but it's internal parts are little known.

Africa is bounded on the west by the Atlantic Ocean; on the north by the Mediterranean, which separates it from Europe; on the east by the Red Sea and Indian Ocean; and on the south by the Southern Ocean. It lies between the parallels of thirty-seven degrees north, and thirty-six degrees south latitude, and between seventeen degrees west, and fifty-one degrees east longitude. It is in length from north to south, about four thousand six hundred miles, and three thousand five hundred in breadth from east to west.

This quarter of the globe may be divided as in the following table.

SECT. XI

Countries.

Morocco
Algiers
Tunis
Tripoli
Barca
Egypt
Bilidulgerid
Zaira
Negroland
Guinea Pro.
Nubia
Abyssinia
Abex
Loango
Congo
Angola
Benguela
Mataman
Ancan
Zanguebar
Monomo-
tapa
Monemugi
Sofala,
Ter de Natal
Castraria

Names.

St. Helena
Ascension
St. Mat-
thew
St. Thomas
Anboia,
Princes I.
Fernan-
dopo,
Cape Verd
Islands
Goree
Canaries
Madeiras

Countries

Countries.	Length.	Breadth	Chief Cities.	Latitude.	Longitude from Greenwich.	
					In Degrees.	In Time.
	miles	miles		D. M. S.	D. M. S.	H. M. S.
Morocco	500	480	Fez	33 40 0 N.	6 0 0 W.	0 24 0 aft.
Algiers	600	400	Algiers	36 49 0 N.	2 12 0 E.	0 9 0 bef.
Tunis	400	250	Tunis	36 40 0 N.	10 0 0 E.	0 40 0 bef.
Tripoli	400	300	Tripoli	32 50 0 N.	21 30 0 E.	1 26 0 bef.
Barca	700	240	Tolemeta	32 53 0 N.	13 5 0 E.	0 52 0 bef.
Egypt	600	250	Grand Cairo	30 2 0 N.	31 18 0 E.	2 5 0 bef.
Bilulgerid	2500	350	Dara		8 0 0 W.	0 32 0 aft.
Zaara	2400	660	Tegeffa	21 40 0 N.	6 0 0 W.	0 24 0 aft.
Negroland	2200	840	Madinga			0 38 0 aft.
Guinea Pro.	1800	360	Benin	7 40 0 N.	5 4 0 E.	0 20 0 bef.
Nubia	940	600	Nutia	17 0 0 N.	33 0 0 E.	2 12 0 bef.
Abylinia	900	800	Gondar	13 10 0 N.	35 0 0 E.	2 20 0 bef.
Abex	540	130	Doncala	15 6 0 N.	39 0 0 E.	2 36 0 bef.
Loango	410	300	Loango	5 0 0 N.	11 0 0 E.	0 44 0 bef.
Congo	540	420	St. Salvador	5 0 0 S.	15 0 0 E.	1 0 0 bef.
Angola	360	250	Loando	8 30 0 S.	14 30 0 E.	0 58 0 bef.
Benguela	430	180	Benguela	11 0 0 S.	14 30 0 E.	0 58 0 bef.
Mitaman	450	240	No Towns			
Ancan	900	300	Brava	1 0 0 N.	45 0 0 E.	3 0 0 bef.
Zinguebar	1400	350	Mozambique	15 0 0 S.	40 0 0 E.	2 40 0 bef.
Monomo- tapa	960	660	Monomotapa			1 18 0 bef.
Monemugi	900	660	Chicova			1 44 0 bef.
Sofala,	480	300	Sofala	20 0 0 S.	36 40 0 E.	2 26 0 bef.
Ter de Natal	600	330	No Towns			
Caffraria	780	660	C. Good Hope	33 55 0 S.	18 23 0 E.	1 13 0 bef.

ISLANDS OF AFRICA.

Names.	Chief Towns	Claimed by, or trading with.	Names.	Chief Towns	Claimed by, or trading with.
St. Helena	St. Helena	English.	The Azores, or Western Isles, almost equi-distant from Europe, Africa, and America.	Angra	Portuguese.
St. Mattheu	Uncolonized				
St. Thomas	St. Thomas	Portuguese.			
Anaboa, Princes I.	Anaboa	Portuguese.			
Fernando, Cape Verd Islands	St. Domingo	Portuguese.	In the Indian Ocean		
Goree	Port St. Michael	French.	Babelmandel	Babelmandel	Open Trade.
Canaries	Palma St. Christophers	Spaniards.	Zocotra	Calanfia	Open Trade.
Madeiras	St. Croix, Funchal	Portuguese.	Comora Islands	Johanna	Open Trade.
			Mauritius	Mauritius	French.
			La Reunion		French.

SECTION XLVIII.

Egypt.

Egypt has the Mediterranean for it's boundary on the north, the isthmus of Suez and the Red Sea on the east, Nubia on the south, and the Deserts of Barca with the unknown regions of Africa on the west. It lies between thirty and thirty-six deg. east longitude, and between twenty and thirty-two deg. north latitude. It is divided into Upper and Lower Egypt.

398. *Climate.*] The almost perpendicular rays of the sun at the summer solstice render the climate excessively hot in that season, and the winters are never severe. The southerly winds are sometimes so sultry here as to oblige the natives to immure themselves in vaults and caves, and sometimes they raise such clouds of sand as to obscure the light of the sun, and produce epidemical disorders; and once in six or seven years the inhabitants are visited by the plague; but this and other diseases generally cease on the coming in of the etesian or north wind, and the overflowing of the Nile, which celebrated river also enriches the naturally sandy soil of Egypt, by the adventitious earth or mud it deposits on the plains.

399. *Nile.*] The heavy periodical rains which fall within the Tropics certainly occasion the annual inundations of the Nile. This reputed father of rivers is supposed to have it's origin in Abyssinia, at eleven or twelve degrees of north latitude, and pursues a course of about fifteen hundred miles, for the most part in a nothern direction, till it divides into two branches about six miles below Cario; one of which stretches eastward, and the other westward, emptying themselves into the Mediterranean Sea, at the distance of a hundred miles from each other; it has also several other smaller mouths. The ancients, who were ignorant of the climates in those latitudes, and who had never observed any thing similar to the overflowing of the Nile in other rivers, were involved in labyrinths of doubt and perplexity, when they attempted to account for this yearly deluge; but the annual rise is now well known not to be peculiar to the Nile, but common to every other stream that rises or takes it's course within the Tropics, whether in Africa, Asia, or America.

In the beginning of summer the Nile begins to rise, and during the first week it's daily increase is about three or four inches; the next fortnight it is considerably greater in proportion, and thus continues augmenting with increased expedition; and it is not till after four months that the river is reduced to it's usual channel. The principal cities and towns in Egypt are built on eminences along the banks of

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the Nile, and during this period communicate with each other by boats. In order to ascertain the daily increase of the water, the gradual rise of it is very exactly measured, either by wells sunk, or pillars erected and divided for that purpose, and termed Nilometers or Mikyasies. That in the castle of Old Cairo is a large square reservoir, round which runs a handsome gallery, supported by twelve marble pillars and arches, with a balustrade for the convenience of those who look into the water. In the midst of the basin, through which a canal from the Nile passes, is an octagonal pillar of white marble, regularly or equally divided; by this the rising of the water is determined, and the public criers daily proclaim it through the capital and other cities.

When the water has risen about thirty-four feet, a general festival is observed, the Bashaw attends, accompanied by the great officers of state and an innumerable concourse of people; the dam of the Chali or great canal is cut, the water continues to rise, overflows the low country, and filling the canals and lakes prepared for its reception, is distributed over an extent of land where natural inundation would never reach; with incredible labour the water is also raised with buckets and machines from basin to basin, one above another, in Upper Egypt, till, having gained the height, it is occasionally distributed over the higher lands, and in this laborious task, and in tilling the land, it is said, that no less than two hundred thousand oxen are daily employed.

When the Nile rises about forty-nine feet, it is a sign of a plentiful year; but, if it exceed that height, it is productive of great mischief, sweeping away the houses and drowning the cattle: all this deluge of waters pours, in the Upper Egypt, down the vast chasms of lofty rocks and towering cliffs, roaring, dashing, smoking, foaming, from shelving to shelving of interruptive granite,—or precipitates at once, and in one expansive sheet from the brink of its rocky channel to the profound, two hundred feet below, with a noise more tremendous than that of the loudest thunder, raising a smoke or mist which at a distance has all the appearance of a cloud; yet the natives are said to venture on rafts down this astonishing fall, and to amuse themselves by getting within the expansive sheet of water, which being projected with amazing velocity from the ledge above, form over them as it were one large glassy arch.

400. *Produce.*] Egypt, which was formerly the granary of the Roman empire, as it is at present of the neighbouring countries, abounds with wheat, rice, barley, and other species of grain. They have generally three crops in the year; the first of lettuces and cucumbers; the second of corn; the third of mellons, and the fruits common to hot climates, as oranges, lemons, grapes, figs, olives, dates, plantains, plane trees, sugar canes, &c. thrive exceedingly here. The meadows yield the richest pasture in the world, the grats being usually as high as the cattle, vast numbers of which are fatted in them.

The animals of Egypt seem to partake of the fecundity of the soil; for the cows, it is said, always bring two calves at a time, and sheep bear twice in a year, having two lambs at the first, and one at the second; a goat is often followed by four kids, which she has brought in

six months. Oxen abound here. The Egyptian horses are held in great esteem, and a fine breed of asses are likewise found here; also wild asses, camels, antelopes, tigers, hyenas, apes, ichneumons, cameleons, the crocodile, the hippopotamus or river horse, &c. Among the reptiles are the basilisk or cockatrice, and the asp, whose bite stupefies the patient, and throws him insensibly into a deep sleep, which puts a period to his life, as the unhappy Cleopatra voluntarily experienced.

The birds are numerous, both wild and tame, particularly ostriches of prodigious size, which, if closely pursued, will strike back with their legs like a horse; eagles, hawks, a prodigious number of water fowl, as pelicans, flamingos, storks, &c. but those peculiar to the Nile are the ibis, the goose with golden feathers, the rice hen and the sak sak.

401. *Trade.*] Before the navigation to India was discovered by the Europeans, this country was the universal mart for the produce and manufactures of the east; but that branch of trade is now greatly declined; most of the European powers however have consuls at Egypt. Several English vessels arrive annually at Alexandria, some of which are laden on account of the owner; but they are principally freighted by the Jewish, Armenian, and Mahometan traders.

They export great quantities of unmanufactured as well as prepared flax, cotton, and leather of different kinds, also a great variety of medicinal roots and drugs for dying. Their imports are Italian silks, English cloth, tin and lead, French trinkets, Asiatic silks, carpets and spices, and a variety of articles from Barbary. The traffic by land is chiefly carried on by caravans.

402. *Curiosities.*] It would require volumes to describe the astonishing remains of ancient temples, palaces, columns, statues, paintings, &c. that are profusely scattered over a great part of this once renowned country. Those surprising monuments of antiquity, the pyramids of Egypt, which baffle the researches of the deepest antiquary, to fix with precision their origin, are situated near Cario, at the foot of those mountains which separate Egypt from Lybia. One of the largest of these is five hundred feet high, and its base above six hundred feet square. The external part is composed of great square stones cut from the rock, which lies along the ancient course of the Nile, whose original bed is still visible; it is hollow within, and the apartments are lined with highly-polished granite. It is ascended by circular steps on the outside, and the entrance into it is at the height of about forty-eight feet, where travellers discharge pistols to dislodge the bats which frequent these places in great numbers. On the top of this pyramid, the adventurers who have ascended it have carved their names. At some distance from this is the celebrated Sphinx, of prodigious dimensions, and cut out of the solid rock. The Mahometans have battered and disfigured this image; it is hollow within, and from hence it has been supposed the priests bawled out their oracular answers.

One of the pyramids, about one hundred and fifty feet high, is built with bricks of uncommon dimensions, said to have been formed of the mud of the Nile, mixed with chopped straw, and hardened by the sun. From the nature of the materials, it is conjectured that the enslaved Israelites were the constructors of this stupendous work; their own historian Josephus informing us, that when the memory of Joseph's

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seph's services was extinguished, and the kingdom passed to another family, the Jews were treated with great rigour, and compelled to cut canals for the Nile, build walls, and erect pyramids. Near this are the famous catacombs of Egypt: in these repositories of the dead, embalmed bodies, or mummies, swathes or bandages, and some entire coffins of sycamore, or Pharaoh's fig-tree, are still to be seen, which have certainly continued in these subterraneous chambers upwards of three thousand years.

The famous labyrinth near the banks of the Nile, containing twelve palaces and one thousand houses, all of marble, and mostly underground, with but one entrance to it, and full of intricate turnings and windings; the very capacious lake Mœris, dug in order to prevent the irregularities of the Nile; the vast and numerous grottos in a mountain near Osyut, cut out of the rock, one of which is large enough to contain six hundred horse: at Alexandria, Pompey's pillar and the obelisk of Cleopatra, with innumerable other antiquities, are all of them reckoned among the curiosities of this country.

403. *Language, Learning, Profession.*] The Coptic, which was the original language of Egypt, was succeeded by the Greek, when the kingdom was conquered by Alexander. The Greek, continued to be spoken till the Arabs took possession of Egypt, and ever since that period, the vulgar Arabic has been the common language; the Coptic and modern Greek however still continue in use.

Learning is at a very low ebb in this ancient seminary of the sciences; the native Mahometans and Arabs are as ignorant as can well be conceived; and the little learning of the country, which seems to be confined to reading, writing, and book-keeping, is entirely in the hands of the Coptics, who on this account meet with considerable encouragement from the rich and great.

The Coptics profess Christianity; the adherents of the Greek church are likewise pretty numerous, as are also the Jews.

It is probable, that Egypt was first occupied by human inhabitants, by an emigration from the plains of Chaldea, considerably prior to that of the father of Abraham. The overflowings of the Nile, favourable to the vegetation of plants yielding grain, but excluding cattle, for a part of the year, soon taught the first Egyptians to practise agriculture. The construction of buildings, and the permanent arrangements of civil and domestic life, naturally ensued, where the practice of husbandry had been once introduced. The dread of fatal, overwhelming inundations suggested the erection of buildings like the pyramids. Civilization softening the spirits and manners of the Egyptians, exposed them to be occasionally subdued, by barbarous invaders from the deserts of Arabia, and of Abyssinia. The priests became of great importance, because they possessed considerable knowledge, and that knowledge could not be easily disseminated, till conquered by the Persians. The Egyptians retained their ancient institutions and manners; still subduing by their arts, the spirits of those who had vanquished them in arms. They strove, in vain, to emancipate themselves from the Persian yoke. Alexander the conqueror of the Persian empire, made the Greeks, also, masters of Egypt, and became the founder of Alexandria, destined to be long a noble emporium for the

commerce of the East. A Grecian kingdom of Egypt was founded by one of his successors. It flourished, till the progress of the Roman arms at length subdued the African with the Asiatic empire of the Greeks. Egypt was finally subdued by the arms of Augustus, and with the death of Cleopatra. It remained a province of the Roman empire, till it was again conquered by the Mahometans from Syria. The Mameluke militia established by the Calipos made themselves masters of the Egyptian kingdom. It was unsuccessfully invaded by Lewis the Ninth of France, and the heroes of the Crusade. It became at last a conquest of the Turkish arms, and a province of the Ottoman Empire. In the weakness of that empire, the Beys, at the head of a militia similar to the Mamelukes have, again, virtually usurped the dominion of Egypt. It has been invaded by the French under their leader Buonaparte; perhaps Buonaparte and his army may be destined to perish in Egypt.

SECTION XLIX.

Barbary.

Barbary, in a general view, extends from the Atlantic Ocean to Egypt, near two thousand miles in length, and from the Mediterranean sea to the Lybian deserts seven hundred and fifty miles, and comprehends in succession from west to east the countries of Morocco and Fez, which form one distinct empire, and the states of Algiers, Tunis, Tripoli, and Barca, which form one great political confederacy under the Porte or Turkish government, however independent they may be on each other in their internal policy and government.

405. *Divisions.*] In Morocco empire are the towns of Morocco, Fez, Maquinez, Taradant, Tangier, Sallee, Ceuta, Tetuan, Arzilla, and Santa Cruz. In Algiers Tremesen, Oran, Algiers, Bugia, Constantina: in Tunis, Carthage, Tunis, Pescara; in Tripoli, Tripoli; in Barca Desert, Docra.

406. *Rivers, Mountains, Climate.*] The coasts of Barbary are well watered by several copious streams, which have their source among the mountains of Atlas, on the tops of which snow is constantly seen during the whole year. The climate is generally temperate, but, during the summer, the heats are sometimes excessive.

407. *Soil, Plants, Animals.*] The soil is extremely fertile in corn and pasture, and produces dates, figs, grapes, olives, almonds, apples, pears, cherries, plums, citrons, lemons, oranges, pomegranates, with plenty of roots and herbs in their kitchen gardens; and excellent hemp and flax grow on the plains. Algiers produces saltpetre, and great quantities of salt, and lead and iron are found in several parts of Barbary. Fish and fowl abound here. Their other animals are a fine

breed of horses, rabbits, and kinds of moles, ca

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breed of horses, camels, dromedaries, asses, mules, cows, sheep, goats, hares, rabbits, lions, tigers, leopards, monstrous serpents, and all kinds of reptiles, bears, porcupines, foxes, apes, ferrets, weasels, moles, cameleons, &c.

408. *Curiosities.*] Salt mountains and saline lakes, hot springs and sulphureous caverns, are the natural curiosities of this country. Ruins of ancient cities, temples, altars, amphitheatres, aqueducts, reservoirs, baths, triumphal arches, mausolea, columns and statues, are among the antiquities of this country, and many of the modern buildings are spacious and splendid, covered with lofty roofs supported by pillars of marble. Spacious courts, adorned with large galleries, fountains, marble basins and fish ponds, often distinguish the houses of the affluent, as well as the colleges, mosques, baths, and hospitals, which are pleasantly shaded with orange and lemon trees, loaded with fruit throughout the whole year.

409. *Manufactures, Commerce.*] The internal trade of Barbary is carried on by caravans; their exports are manufactured leather, fine mats, handkerchiefs, carpets, elephants teeth, ostrich feathers, copper, tin, wool, hides, honey, wax, fruits, gums, and drugs. In return for their exports, the Europeans furnish them with timber, artillery, gunpowder, and various manufactures. Commercial affairs are generally transacted by the Jews and Christians who have settled among them; and the latter have established silk and linen manufactures here.

410. *Profession, Language.*] The doctrines of Mahomet are the national profession. The language varies greatly; in some of the inland countries an ancient African language is still in use; in the maritime countries and sea-port towns a corrupt Arabic is spoken; and that medley of languages, which is spoken in many of the ports of the Mediterranean, and known to the sailors by the name of *Lingua-Franca*, is also used here.

411. *Literature.*] Learning, as may well be presumed, is at a very low ebb in Barbary, even some of their governors have been incapable of reading and writing. There are, however, several colleges and schools in their cities and towns, in which the doctors of the laws, and other literati, are maintained; some at the public expence, and others by exercising the mendicant profession; the veneration in which they are universally held never failing to ensure their success. The Koran is esteemed the perfection of all human learning, and when once the student has gone through it, he is superbly dressed, placed on horseback, and conducted in triumph through the town by his school-fellows.

Some wandering tribes, who had entered Africa by the way of Egypt, might perhaps be the first human inhabitants that occupied these northern and north-west parts of Africa. A Tyrian colony then built Carthage upon this coast. The Carthaginian commonwealth, enriched by the commerce of the Mediterranean, connecting the eastern with the western world, attained to a pitch of greatness which made them the masters of a part of the Greeks and the rivals of Rome. In a long and often-renewed contest with Rome, Carthage at last fell.

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The Romans extended their conquests even to the interior parts of Africa. The Greeks had established some petty colonies on the coast of Africa adjacent to the Mediterranean. But these were quickly swallowed up in the empire of Carthage, or of Rome. Africa became, under the Romans, a great provincial government. It became rich and populous with civilised Roman citizens and subjects. Christianity found it's way into Africa. The contentions concerning the Donatist heresy at one time afflicted it with terrible ills. At length, after various convulsions and revolutions, it was added to the conquests of Mahometism. The empire of Morocco, and the principalities of Algiers and Tunis have arisen from the Mahometan conquest. The principalities own the nominal supremacy of the Turkish government. The empire of Morocco is independent. These places are all, remarkably, seats of the grossest barbarism. Their command of a part of the coasts of the Mediterranean sea affords them opportunity to be pirates. All the states and sovereigns of Europe find it easier to subsidize than to exterminate them. They subsist and do mischief by this sufferance.

SECTION L.

Western Parts of Africa.

413. *Zaara.*] Zaara, or the Desert, and the adjoining countries of Bilidulgerid, on the north, and Tombut on the south, are much involved in geographical uncertainty. They are altogether bounded on the north by Barbary, on the west by the Atlantic, on the south by Negroland, and on the east by Nubia and Egypt; comprehending an immense extent of burning sands, whose sterility no labour can overcome, unless near the few rivers and springs which visit this parched land. The soil of Zaara and Bilidulgerid, even where capable of cultivation, barely produces corn, rice, and millet, sufficient for the exigencies of it's scanty inhabitants. Dates, indeed, are, in general, plentiful, with some other fruits, on which the natives principally subsist. Descendants of various tribes of Arabs and Berebers, or the original natives of Barbary, are the inhabitants of this dreary country; and the history both of themselves and their land is pretty much the same with that of Arabia and it's roving tribes. Lions, tigers, wolves, and other savage animals add to the horrors of this inhospitable land, through which, however, caravans annually pass between Barbary and Nigritia. The roving natives of this desert land, for want of other marks, are under the necessity of observing the stars in their excursion, and can talk with tolerable precision about their number, situation, and divisions; and in Bilidulgerid there are seminaries for the instruction of

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of youth, who, according to their abilities, are raised to the rank of priests or judges.

Tombut is well watered by canals cut from the Niger, as well as by a number of springs which fertilize the soil, and render it productive of all kinds of grain, and almost every necessary of life. The king of this country possesses prodigious quantities of gold, and his whole court is reported to eat out of vessels of that metal.

414. *Negroland.* } The extensive country of Negroland, or Nigritia, includes the entire space between Zaara and Guinea, comprehending many and various nations. The parts that we are acquainted with are those that lie on the banks of the navigable rivers which have been visited by Europeans.

The principal rivers in Nigritia are the Scherbro, Sierra-Leona, Sestos, Gambia, and Niger, or Senegal; they abound in fish, but are greatly infested with alligators. The banks are adorned with beautiful trees, swarming with birds of the most lively plumage, and luxuriant forests teeming with life in various forms; elephants, tigers, lions, apes, and serpents of astonishing dimensions; deer, hogs, hares, &c. The gum forests are immense on the sides of the Senegal; the beautiful islands of Sierra Leona are covered with palms, from which the natives make great quantities of wine; rice and millet grow in such quantities on the sides of the rivers, as amply to supply the natives with food; lemons, oranges, bananas, and citrons, arrive at vast perfection; and, in the interior parts of the country, ananas, Indian figs, water-melons, white prunes, cassava, and different sorts of pulse, are produced in the greatest abundance. The doctrines of Mahomet generally prevail in this country; and in some parts there are seminaries where the Arabic is taught. The Marabuts are a distinct order of men, whose dignity descends to all their male offspring, forming a numerous ecclesiastical body, and having vast revenues appropriated for their maintenance. They spend much of their time in the tuition of their children, whom they carefully instruct in the principles of the Levitical law; which, next to the doctrines of the Koran, is treated with the greatest respect. The great volume of the Marabut institutions is written in a language entirely different from that of the vulgar, and is supposed to be a corrupt Hebrew or Arabic. Some of the Marabuts travel from province to province instructing the natives; all places are open to them, and during the rage of the most sanguinary contest, they pass unmolested through the fields of war.

There are nations in Negroland, of whom the Europeans do not even know the names; among those whom they are acquainted with, and who use different tongues or dialects, are the Mandingoes, the Jalloiffs, Pholeys, and Portuguese; which last-mentioned people, after conquering this country, have so intermingled with the original natives, and lived so much after their manner, they have now nearly lost every trait of the particular European visage and complexion, though they still retain a sort of Portuguese dialect, and some rude notions of the Christian profession.

Manufactures and arts are little practised here; smiths and cutlers are

are the principal mechanics : the women spin and weave a little cotton.

The habitations of the negroes in general are small, low, conical huts, with no other light than what is admitted at the door. The towns are always raised in a circular form, with spiral streets; hence in a village of inconsiderable extent a person is often obliged to walk a great way, when, by short, intersecting streets, a few paces would suffice. Some negroes of distinction, however, particularly the descendants of the Portuguese, affect the European style of architecture, and build houses tolerably well adapted to the climate.

The Europeans have many settlements on the rivers of this country: here they procure vast quantities of gums, bees' wax, gold, elephants' teeth, skins of wild beasts, &c.; and here, it is a melancholy truth, they carry on the iniquitous traffic of dealing in men.

415. *Guinea.*] South of Negroland lies Guinea. This vast country, in it's utmost extent, comprehends a great number of kingdoms and nations: it lies between nine degrees eighteen minutes north, and sixteen degrees forty-five minutes south latitude, extending in length about two thousand five hundred miles along the sea-coast; but it's breadth cannot be accurately determined; it's boundaries on the east being undefined, and blended in uncertainty; together with the interior and unknown regions of Africa, which lie round the Mountains of the Moon, in the centre of this quarter of the globe.

Guinea is divided into the Upper and the Lower.

In Upper Guinea, on the north, are the Grain Coast, the Tooth or Ivory Coast, the Gold Coast, the Slave Coast, and the kingdom of Benin.

South of the line the Lower Guinea comprehends the kingdoms of Loango, Congo, Angola, and Benguela.

Guinea, in it's natural history, and it's intercourse with Europeans, pretty much answers the description just given of Negroland; and both these fertile lands, in the midst of their spontaneous profusion, are, in common with other tropical countries, exposed to excessive heats, to tornadoes, and other tempests.

Various forms of idolatry, and the grossest superstitions, are said to prevail throughout this extensive country; the natives, in some parts, worshipping snakes, goats, tigers, and other animals.

416. *Mataman.*] Between the most southern extremity of all Guinea and the Cape of Good Hope, lies Mataman, or Matapan, an extensive arid waste, not containing any towns, and having very few inhabitants. If we are to believe the Portuguese writers, who, about two hundred years ago, pretended to describe this country, here were nations of Amazons and Cannibals, perpetually at war with each other, in whose shambles the limbs of the captives were exposed to sale, and who buried their children alive, and recruited their armies with the stoutest of their prisoners. To raise reports, however, of this kind, and thereby to deter adventurers from penetrating into unknown countries, for gold, or other treasures, seems sometimes to have been the policy of people less cunning than Europeans.

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SECTION LI.*Eastern Parts of Africa.*

All the rest of Africa lies south and east of the countries already described ; as the greatest part of it is but little known to Europeans, geographical precision can hardly be expected in laying out it's divisions ; it is sometimes all included under the general name of Ethiopia, sometimes it is divided into Caffraria and Ethiopia ; and again it is reduced into divisions more minute.

Beginning at Egypt on the north, already described, the Upper Ethiopia lies towards the south, and is generally divided into Nubia, Abyssinia, and Abex. It is bounded on the north by Egypt, on the east by the Red Sea, on the south it joins with the Lower Ethiopia, or Caffraria, and on the west with the undiscovered eastern confines of Zaara, Negroland, and Guinea.

417. *Nubia.*] Nubia affords gold, ivory, roots, and drugs, with a variety of medicinal plants ; the inhabitants, in general, profess Mahometanism, but have very few marks of religion among them. In the few villages of this region, they apply themselves to agriculture ; but the greatest part of them indulge in perpetual indolence, and like the lions and other savages of this inhospitable country, wake only to plunder and destroy at the keen impulse of hunger. It is said, however, that there are among them some Christians and Jews, as well as Pagans and Mahometans.

418. *Abex.*] Abex, which is only a narrow slip of land, extending along the western shore of the Red Sea, is sandy and barren, the air sultry and unwholesome, and the heat so intense, that it produces few necessaries of life ; lions, tigers, and other beasts of prey, roam the wild waste unmolested, besides which there are but few animals, except deer, and sheep of a prodigious size.

The inhabitants are a mixture of Egyptians, Arabs, and Caffrees. The Turks having seized all the bays and ports of Abex from Egypt to the Straights of Babelmandel, the principal of which are Suaquam and Arquico ; the Abyssinians are hereby shut out from any communication with the Red Sea, and on the other sides they are surrounded by mountains.

419. *Abyssinia, &c.*] Abyssinia, in the inland parts, however, is said to be exceedingly fertile ; the Nile, which is supposed to have it's source in this country, periodically overflows, and enriches it's plains ; it is plentifully stocked with animals, both wild and tame ; the oxen are so large, that some have mistaken them for elephants with horns, and the camelopardus is much taller than an elephant, but of a very slender make ;

make; it's locusts are large, and excellent eating. The Turks annually export great quantities of rice from hence, particularly at the time of the pilgrimages to Mecca, Arabia not affording provisions sufficient for their sustenance; they also exchange their silks, stuffs, calicoes, linens, and carpets, with the Abyssinians.

The emperor of Abyssinia, as well as his subjects, living much in tents, his camp always occupies a very large space of ground, and from the regular distribution of the streets, the great variety of tents, streamers, and other ornaments, and the great number of illuminations at night, make a very grand appearance, exhibiting the view of a vast, open, and regular city; in the centre, or other conspicuous part of which stands the imperial pavilion, greatly exceeding the rest both in magnitude and beauty.

The Abyssinians profess Christianity, and are so hospitable to travellers, that inns would be superfluous.

The Gallas are a people inhabiting their borders; and subsisting chiefly by the sword, they are desperate in battle, but stedfast in their engagements.

Abyssinia probably received it's first population from Egypt. It was visited, and perhaps colonized, by the Jews in the next flourishing period of their ancient independence. It lay beyond the reach of the Persian Cambyfes, whose armies perished in the attempt to pass the deserts of Sannaar. It was not penetrated by the ambition of Alexander. The deserts formed a barrier, to protect it from Roman conquest. While Christianity prevailed in Egypt, under the Lower Greek empire, the Abyssinians were converted from the Jewish to the Christian faith. The ancient race of their kings, said to be of the line of Solomon, still continued to reign. Besides the Christian Abyssinians, several Pagan tribes were subject to the Abyssinian yoke. The whole empire was savage or barbarous: and even Christianity could not effectually refine their morals and soften their manners. A state of government and manners, not unlike to the feodism of the dark ages of Europe, but far more barbarous, still prevailed in Abyssinia. In the progress of the Portuguese discoveries, Abyssinia became known to those first of European adventurers. They endeavoured, with no happy success, to establish the empire of Catholic Rome over the Abyssinian church. Their design was, at last, relinquished. From that time till the time of Mr. Bruce, Abyssinia was neglected by Europeans. Bruce penetrated into the interior regions of Abyssinia, and has shewn, that if the port of Masuah were in the hands of the British East India Company, an advantageous trade might be *directly* opened with the Abyssinians. The race of their ancient kings is still preserved. Civil wars incessantly waste the land.

South of Abyssinia lies Monoemugi, an extensive inland country abundantly rich in palm wine, oil, honey, and gold; the climate is said to be unfavourable to health, the air sultry and hot.

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SECTION LII.

Character of the Africans; European Settlements, &c. on the Continent and in the Isles.

420. *Character and Disposition of the Africans.*] In addition to what has already been said of this hitherto little known, neglected, or abused quarter of the earth, a few extracts, from the latest accounts that have been published respecting it, may afford some satisfactory information, respecting the country, its inhabitants, and the colonies which have been there established. The philanthropic author of the Essay on Colonization, perhaps not yet sufficiently disgusted, though evidently pretty much sickened, with the distorted and oppressive manners of our portion of the globe, after travelling through most parts of Europe, and observing various modes of civilized society, was desirous of contemplating human nature in simpler states, declares that he has often been grieved and astonished, since he trod the fertile soil of Africa, and surveyed her rude, but valuable, natural stores, that such a country should have been so long overlooked by the industrious nations in Europe.

This descendant of the Goths, let him excuse this description, for the Swedes are accounted the French of the North, and the Gothic, or feudal system has not had any greater enemies than the French of the present day—This citizen of the world thinks, that cultivation and commerce, established upon right principles, rendering the mind active, would early dispose it for the reception of pure moral instruction. It is but the part of candour, however, to observe that the system of commerce, which he wishes to have introduced, is considerably different from that, under which the people of Europe are toiling and groaning; their fetters being made of gold, the glare of them makes them forget that they are heavier than those of baser metal. He wishes his *chers Africains*, too long the wretched victims of such a system, to be rescued from its horrors, its most palpable enormities, and to be kept, by a more simple, and better order of things, from the vexations which accompany it, under its more specious appearances.

“The understandings of the Africans, says he, have not been nearly so much cultivated, as those of the Europeans; but their passions, both defensive and social, are much stronger. No people are more sensible of disrespect, contempt, or injury, or more prompt and violent in resenting them. They are also apt to retain a sense of injury, till they obtain satisfaction, or gratify revenge. In this they resemble other imperfectly civilized tribes, and even the more refined Europeans, in whom

whom that benevolent religion, which teaches forgiveness of enemies, has not yet produced it's full effect. For was not satisfaction to offended honour; that is, was not a certain mode of revenge, a distinguishing part of the system of chivalry? And do not our modern duellists, the polite successors of the ancient knights, still cherish a principle which they will not allow to be called revenge; but for which sober people cannot find a better name? Revenge causes wars in Africa: and are there no symptoms of it's producing wars in Europe? But African wars are never protracted, with cold-blooded perseverance, to the length of the siege of Troy; nor is peace ever negotiated with a view to future wars. The Africans have no particular tortures in reserve for their prisoners, like the North American Indians; nor do they ever devour them, like the natives of New Zealand.

"But if they be charged with hatred to their enemies, kindness to their friends ought, in candour, to be stated to their credit; and their hospitality to unprotected strangers is liberal, disinterested, and free from ostentation; as I myself, and many others have experienced. Their kindness and respectful attention to white persons, with whose characters they are satisfied, arises to a degree of partiality which, all things considered, is perfectly surprising. Persons of this description, may, and often do, reside among them in perfect security, receiving the best possible proofs of their good will, namely the most pressing solicitations to settle among them. This partiality to well-disposed Europeans extends also to their dress, manners, and commodities; in short, to every thing that is European—a disposition which might long ago have been improved to the best purposes.

"On those parts of the coast and country, where the slave-trade prevails, the inhabitants are shy and reserved, as well they may; and on all occasions go armed, lest they should be way-laid, and carried off.

"In maternal, filial, and fraternal affection, I scruple not to pronounce them superior to any Europeans I ever was among; but, as they practise polygamy, their paternal and conjugal affections may be supposed less ardent.

"As many of them have not sufficient employment, either for their heads or their hands, they are apt to relieve listlessness by intoxication, when they can procure the means. So very successful, indeed, have the European slave-dealers been, in exciting in them a thirst for spirits, that it is now become one of the principal pillars of their trade; for the chiefs, intoxicated by the liquor with which they are purposely bribed by the whites, often make bargains, and give orders fatal to their subjects, and which, when sober, they would gladly retract. A desire for spirituous liquors, however, is the failing of all uncivilized people. In particular, it has greatly thinned some American tribes, and almost annihilated others.

"Their notions and practices respecting property, are not more inaccurate or irregular than those of other men in the same stage of society; as is evident from the general conduct of such of them as are unconnected with this destructive commerce. But those who are may be expected to be tainted with it's concomitant vices. As the

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whites practice every fraud upon them, in the quantity and quality of the goods delivered, and in trepanning their persons, the blacks cannot carry on this trade, on equal terms, without resorting to similar practices. As to the injustice, cruelty, and rapine which, at the instigation of the whites, they practice on one another, they are not more disgraceful than the well-known trades of crimps, and kidnappers, and press-gangs, carried on, without foreign instigation, in several European countries, and even protected, or connived at, by their governments. At the worst, these practices are not so disgraceful to uncivilized men as to their civilized, European instigators. Menzel gives a horrid detail of the operations of the *Zeelverkoopers*, (soulmongers) of Holland, whose infamous trade it is to trepan men for their East India settlements. By such means, the author affirms, that the population of the pestiferous city of Batavia is kept from total extinction.

“Of the infamous arts of the Europeans, and the consequent intoxication and violence of one of the African chiefs, I have had ocular proof. In order to promote the slave-trade, the French governors at Goree send yearly presents to the black kings, who return a gift of slaves. In 1787, I attended an embassy of this kind to the King of Barbessin, at Joal, on the coast between Goree and Gambia. That chief having been unwilling to pillage, was kept constantly intoxicated, by the French and mulattoes, till they prevailed on him to issue the dreadful mandate. When sober, he expressed extreme reluctance to harass his people. He complained that the traders of Goree, after making him trifling presents, came upon him with long accounts, and endless pretensions; that the governor listened too readily to their tales, thought too little of the sufferings of the negroes, and must have been imposed upon, when he allowed his name to be used on such occasions—An allegation which most probably was true; for the Chevalier de Boufflers, then governor, I really believe, was ignorant of these knavish proceedings; but, like many other great men, was the dupe of his courtiers. I heard the king more than once hold this language, had it interpreted on the spot, and inserted it in my journal: and yet he soon ordered the pillage to be executed.

“On this occasion, it happened, that only one captive was taken. This was a handsome young negress, who, notwithstanding her tears, was forthwith carried on board a ship then lying off Joal. As she belonged, however, to one of those families who, by the laws of the country, are exempted from slavery, this action shocked the people so much, that a commotion ensued. The king having, by this time, come to his senses, and seeing the danger, entreated the purchaser to return the girl. The Frenchman, though surrounded by a great multitude of negroes, and though our party, including Dr. Sparrman, captain Arrhenius, and myself, consisted but of five white men, was so madly obstinate as to refuse his request. I say madly, for in all the conjunctures of my life, I never was so alarmed for the safety of it. After much entreaty, however, he restored the young woman to her disconsolate relations, the king promising him two slaves in exchange, whom he expected to seize on a future expedition.

"The opposers of the colonization of Africa would have it believed, that the natives are incurably stupid and indolent: but I have in my possession the means of proving the contrary; for, on a question put to me in a committee of the British House of Commons, I offered to produce specimens of their manufactures in iron, gold, fillagree work, leather, cotton, matting, and basket-work, some of which equal any articles of the kind fabricated in Europe, and evince that, with proper encouragement, they would make excellent workmen. All men are idle, till incited to industry by their natural or artificial wants. Their soil easily supplies their natural necessities, and the whites have never tried to excite in them any innocent artificial wants; nor indeed any other wants than those of brandy, baubles, trade-guns, powder and ball, to intoxicate or amuse their chiefs, and to afford them the means of laying waste their country.

"Even the least improved tribes make their own fishing tackle, canoes, and implements of agriculture. I forgot to mention salt and soap, and dying, among the manufactures of those I visited, and who are by no means exempted from the evils of the slave-trade. If, even while that traffic disturbs their peace, and endangers their persons, they have made such a progress, what may we not expect if that grievous obstacle were removed, and their ingenuity directed into a proper channel?

"The slave-trade disturbs their agriculture still more than their manufactures; for men will not be fond of planting, who have not a moral certainty of reaping. Yet, even without enjoying that certainty, they raise grain, fruits, and roots, not only sufficient for their own consumption, but even to supply the demands of the European shipping, often to a considerable extent. In some islands, and parts of the coast, where there is no slave-trade, they have made great progress in agriculture. At the island of Fernando Po, in particular, they have such quantities of provisions, as to spare a sufficiency for all the shipping at Calabar, Del Rey, and Camerones. In some places, they bring their produce to the coast on their heads, and return home, loaded with European goods. Others go in armed bodies even a month's journey inland, with articles for trade. In some places, they wood and water the ships, and hire themselves to the Europeans to work for low wages, both in boats and on shore. In short, their industry is in general proportioned to their comparative civilization, to their own wants, to the demand for their labour, to their desire for European goods, and above all, to their total or partial exemption from the slave-trade.

"Refined nations form systems, and rise to generals: unpolished tribes dwell on detail, and trifle in particulars. The Africans are unacquainted with the dexterity and dispatch arising from the division of labour, and with the numerous advantages of combined exertions systematically conducted. Except in works, which, without united efforts, cannot be performed at all, they do every thing in a solitary, desultory manner. Each individual, or family, like the peasants in some parts of Europe, spins, weaves, sews, hunts, fishes, and makes baskets, fishing-tackle, and implements of agriculture; so that, considering the

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number of trades they exercise, their imperfect tools, and their still more imperfect knowledge of machinery, the neatness of some of their works is really surprising.

"Of their labour in concert, I shall give one example, of which I have been a spectator. The trees on the coast I visited, being generally bent in their growth by the sea-breeze, and wanting solidity, are unfit for canoes. A tree of the proper dimensions is therefore chosen, perhaps fourteen or fifteen miles up the country, which being cut into the requisite length, but not hollowed, lest it should be rent by accident, or by the heat of the sun, the people of the nearest village draw it to the next, and thus successively from village to village, till it reach the coast, where it is formed into a canoe. For this severe labour the villagers look for no other reward than a feast and merry-making, which they enjoy in the true style of rural simplicity.

"The same happy mixture of united labour and festivity takes place at building their houses; also in cultivating, planting, or sowing their fields, belonging to the same village, and in reaping the crop, which is considered as the common property of the inhabitants. Such a practice in Europe would generate endless disputes; but among this simple people, is the best bond of good neighbourhood. Such, indeed, is the amiable simplicity of manners which reigns in the villages remote from the slave-trade, that European visitors are ready to imagine themselves carried into a new world, governed by the purest maxims of patriarchal innocence.

"But though few of them unite their strength, except on these, and a few similar occasions, and most of them turn their hands to different occupations, we are not thence to conclude unfavourably of their intellects, any more than of the intellects of those European peasants, (in Sweden, Norway, Scotland, &c.) whose practices are similar. On the contrary, Lord Kaimes has observed, I think with much truth, that such peasants are generally more intelligent than artificers, to whom the division of labour, in manufacturing countries, has assigned one, simple operation. A peasant, who makes and repairs his ploughs, harrows, and harness, his household furniture, and even his clothes, has an ampler scope for his understanding, and really becomes a more intelligent being, than he who spends his whole life in forging horse-shoes, making nails, or burnishing buttons. Such a being, confined for life to a few simple motions, may be said, in some degree, to lose the use of all his powers, but that of the muscles which perform those motions. His intellect lies dormant, for it's use is superseded by a mere animal habit. He becomes, in short, a kind of live machine, in the hands of some monied man, to contribute to the pride and luxury of drones, who possess no other talent than that of turning to their own account, the activity of their poor brethren of mankind.

421. *European Colonies in Africa.*] "The Dutch East-India ships began to frequent the Cape, about the year 1600; but it was not till 1650, that Van Riebeck, a surgeon, first discovered the advantages that would result from forming a colony there. On returning to Holland, he presented a memorial on the subject to the directors of the Dutch East-India Company, who approved of his proposal, and order-

ed four ships to be equipped for the Cape, with some artificers, a few colonists, and the necessary tools and stores. Van Riebeck was appointed admiral of this fleet, and governor of the new colony; trusts which he fulfilled with such fidelity and success, that he well deserves to be recorded, as founder of that important establishment.

“ In executing this design, the directors acted with a degree of wisdom and disinterestedness too seldom found in the representatives of joint stock companies, and for which, in many other instances, the conduct of their predecessors and successors have not been very remarkable. They authorized Van Riebeck to purchase territory from the natives, which he did, with goods to the amount of 50,000 guilders. — In the choice of colonists, their discernment and prudence were conspicuous. By advantageous promises, faithfully performed, the company induced laborious peasants and honest artificers to emigrate to the Cape. They defrayed the expences of the voyage; and provided the colonists with subsistence, tools, implements of agriculture, and cattle. To each they gave a portion of land, on condition that, in three years, he should have cultivated enough to enable him to support himself, and to contribute to the defence of the colony. They also agreed to bring back to Europe, *gratis*, those to whose constitutions the climate might be unfavourable, and who had full liberty to dispose of their effects to the best advantage. For the reception of the colonists, the company erected villages, each containing 30 houses, a church, an hospital, a town-house, and a public kitchen-garden. To furnish the colony with females, girls, from the orphan-houses in Holland, were sent out, with superintendents to educate them at the Cape; and, on their marriage, the company assigned them small doweries.

“ This extremity of Africa consists of black and barren mountains of granite, without any volcanic productions. The cultivated spots near the town, are of stiff clay, with a little sand, and small stones; but, towards False Bay, the arable soil is almost entirely sandy. The colony of Stellenbosch is said to have the best soil of any at the Cape, but even that produces no very extraordinary proofs of natural fertility. The Dutch have, strictly speaking, four colonies in this part of Africa, namely, the Cape, properly so called, Stellenbosch, Drakenstein, and Waveren. The farms, in many places, are very much scattered. Lions, leopards, tiger-cats, hyenas, jackals, and several other wild beasts, infest the Cape, now and then, even to this day.

“ Yet this country is not without it's advantages. — The air and water, as in most other mountainous tracts, are good, in the same proportion as the soil is bad. Though the summer heats are sometimes excessive, the winters are so mild, that ice is scarcely ever seen about the town. But, on the mountains, especially far inland, there are hard frosts, with snow and hail-storms. The climate, however, upon the whole, is so salubrious, that the inhabitants are rarely troubled with any disorders more serious than colds, caused by the sudden changes of air, from the strong winds, to which the Cape is exposed at all seasons; and strangers soon recover from the scurvy, and other complaints. The support of so many wild beasts, implies the exist-

ence of numerous astonishing least of the are common hippopotamus but they have that the government many miles with excellent terior mountains not appear, of their remains however, extensive native mountains which appear was it's conv and, in this v periority to climate are n for it abound ticular, with cles peculiarly

“ The pr this colony c less infancy, little surplus maturity, the touch there, moderate pri settlements, v rious forts, l try feeds a g where cheaper A farm may feed from 10 and cattle in with the co St. Jago. T tolerable app lected by it we saw a ne desert, surrou or, in other v “ Here, as rows of trees of stagnant w tavia. — The house. The much crowde supply the re

ence of numerous tribes of milder animals; and, accordingly, an astonishing variety, from the mighty buffalo and camelopard, to the least of the beautiful genus of antelopes, and many smaller quadrupeds, are common in this part of Africa. The elephant, rhinoceros, and hippopotamus, formerly came within a short distance of the Cape; but they have been so much hunted, and are so seldom seen at present, that the government have issued an order against killing them, within many miles of the town. The neighbouring seas and bays abound with excellent fish. I know not whether the metallic ores of the interior mountains ought to be mentioned as an advantage, as it does not appear, that the colonists can work them with profit, on account of their remote and rugged situation. Some tribes of Hottentots, however, extract both copper and iron from the ores they find in their native mountains. But the grand advantage of the Cape, at least that which appeared such in the eyes of the Dutch East-India company, was it's convenient situation, as a place of refreshment for their ships; and, in this view, the bare inspection of a map of Africa shews it's superiority to all other parts of that continent. But it's situation and climate are not now it's only excellencies, as a port of refreshment; for it abounds with a variety of the best greens and fruits, and, in particular, with some of the finest grapes and oranges in the world—articles peculiarly proper for seamen after long voyages.

“The prodigious expence, and the persevering attention which this colony cost, during the uncommonly tedious period of it's helpless infancy, began at last to shew their effects, in the exportation of a little surplus corn. But, having since arrived at a state of comparative maturity, the Cape not only supplies the ships of all nations, which touch there, with necessaries and comforts in abundance, and at moderate prices, but supplies all the Dutch, and some foreign Asiatic settlements, with great quantities of corn, flour, biscuit, wines of various sorts, brandy, butter, cheese, and salted provisions. No country feeds a greater number of cattle than this, nor is their flesh any where cheaper or better. An ox commonly weighs from 500 to 600lb. A farm may make from 1500 to 3000lb. of butter, annually. Many feed from 1000 to 6 or 8000 sheep, and a few have as far as 15,000, and cattle in proportion.” “We were not a little pleased, says Forster, with the contrast between this colony and the Portuguese island of St. Jago. There we had taken notice of a tropical country, with a tolerable appearance, and capable of improvement, but utterly neglected by it's lazy and oppressed inhabitants. Here, on the contrary, we saw a neat, well-built town, all white, rising in the midst of a desert, surrounded by broken masses of black and dreary mountains; or, in other words, the picture of successful industry.”

“Here, as in other Dutch towns, their genius manifests itself in rows of trees and canals; though experience proves the noxious effects of stagnant water; especially in hot climates, and most fatally at Batavia.—The company's slaves are lodged and boarded, in a spacious house. The large hospital for the East Indiamen is generally pretty much crowded; for these ships sometimes carry 6, 7, or 800 men, to supply the regiments in India; and their confined situation, and short

allowance of water and salt provisions, make such havoc among them, that it is not very uncommon for an Indiaman, so freighted to lose, between Europe and the Cape, 80 or 100 men, and to send 2 or 300 to the hospital. It is a lamentable fact, that the facility with which the *Zeelverkoopers* (soulmongers) inveigle these unfortunate people, makes the company's servants more indifferent than they should be about their preservation. They are plentifully supplied, however, with an antiscorbutic diet, which, with the air of the place, certainly contributes more to their recovery than their doctors, who drench them all, indiscriminately, with the cheap contents of two or three huge bottles.

"We may estimate the whites, of all ages and both sexes, at between 16 and 20,000. There are in the colony five or more slaves to one white man. The slaves are chiefly from Madagascar, with a mixture of Malays, Bengalese, and some negroes.—The greater part of the colonists are Germans, with some French protestants, and Dutch. They are industrious, hospitable, and sociable; but fonder of good-living, than of acquiring knowledge; for which they may plead the plenty of good cheer, and the extreme scarcity of good schools. Such colonists as can afford the expence, generally send their sons to Holland for improvement; but the education of their females is too much neglected."

This rich settlement now belongs to Britain. It is infinitely valuable, on account of it's own advantages, and because it lies, so conveniently, on the passage to India. It is to be hoped, that, even at the conclusion of peace, the British government will not easily relinquish a possession so important.

"The Portuguese explored the coast of Africa before any other modern European nation. Portuguese Africa, as it may not improperly be called, extends on the west from about 5 degrees of north latitude, to 10, some say 15, degrees south. Here, instead of being cooped up within the narrow limits of trading factories, as they are on other parts of the western coast, they are settled in colonies, under a regular government, and have built several large towns. The soil, which is rich and well watered, they have, in several places, taught the natives to cultivate; for this kind of instruction forms no inconsiderable part of the policy of the Portuguese clergy, who have taken so much pains to convert the natives, that it is thought they have been the means of making many of them better Christians than themselves.

"Awerri, though in the kingdom of Benin, is subject to the government of the Portuguese, who have here a castle and a garrison; also a church and a monastery. It is worthy of remark, that though the river of Benin is very fatal to the English and Dutch seamen who frequent it, yet the Portuguese, who dwell farther within the country, do not experience any particular insalubrity of climate. This is one instance, among many, which might be adduced, to make it probable that the interior of almost all the western parts of Africa is more healthy than the coast.

"Angola was first discovered by the Portuguese in 1484. They afterwards conquered several of it's provinces, and rendered the native king tributary for the rest, as his successors have since continued.

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Their acquisitions may extend 240 leagues along the coast, and, in some places 100 within the land. The capital is St. Paul de Loando, which has a good harbour. It is the seat of the government, and every three years receives a new governor from Portugal. The country has been cleared, drained, and cultivated in so many places, as to improve it's climate very considerably. Some years ago, a number of people from Biscay were sent out to work the excellent iron-mines in Angola; but they miscarried, for want of proper support. The power of the Portuguese is chiefly situated in the interior parts; for the trade of the coast of Angola has always been open; and thither the French, English, and Dutch send yearly a considerable number of ships for slaves, &c.

" In 1484, Congo was discovered by Diego Cam, who, in behalf of his sovereign, King John of Portugal, formed an alliance with the King of Congo, which has continued to the present day, with some interruptions, on the part of the Portuguese. Their chief town, St. Salvadore, is situated 150 miles up the river Congo, or Zaire, upon an eminence, in a country well cultivated, and most commonly salubrious. It is a very extensive place, but not proportionably populous, as the houses are intermixed with spacious gardens, which, doubtless, is one cause of it's salubrity. Yet it's inhabitants must be very numerous, as it is said to have twelve churches, and seven chapels, besides the cathedral.

" Of Loango and Benguela we do not find any thing particular, except that the latter is very unhealthful. They are under the power or influence of the Portuguese; and, I believe, are generally included in descriptions of Congo and Angola. In the interior parts of these last countries, it appears that the Portuguese have many presidios, or garrisons, who, with the assistance of the natives, have cleared and cultivated the land in their respective vicinities, raising maize, calavances, yams, bananas, and other provisions, and fruits.

" Many of the Portuguese, at Loando, Columbo, St. Salvadore, and other places in this part of Africa, are exceedingly rich. It is common for a Portuguese to possess 50, 100, and 200 slaves; and some of the more opulent are the masters even of 3000. A religious society, at Loando, are the proprietors of no fewer than 12,000 slaves, who being blacksmiths, joiners, turners, stone-cutters, &c. earn, by their work, from 4 to 500 rees per day, for the society.—How far this sort of revenue is compatible with the intention of such an institution, it is not my present business to enquire.

" In Congo, Christianity was preached soon after the arrival of the Portuguese; and missionaries are still well received there. Encouragements have been offered at different times, particularly in the beginning of the present reign, to the religious in the convents of Portugal, to labour in the conversion of the natives of Congo, Angola, and their other African possessions. Many missionaries have accordingly undertaken this pious work, at different times. Their success appears to have been considerable; and, had they been steadily supported, there is reason to believe it would have been complete.

Many Portuguese bishops reside in this part of Africa, and numbers of the natives have been regularly ordained priests.

"To the farther credit of that nation, it ought to be noted, that they carry on the slave trade from the countries just mentioned, with as much humanity as it is possible to unite with such a traffic. Great numbers of slaves, who come from the remote inland countries, are shipped from Congo, Angola, &c. None, however, who belong to these last countries are sent as slaves to the Brazils, except black convicts. The Portuguese slave-ships are never over crowded, and the sailors are chiefly blacks, called *Negros Ladinos*, who speak their language, and whose business it is to comfort and attend the poor people on the voyage. The consequences are, that they have little or no occasion for fetters, so constantly used in the other European slave-ships, and that they perform their voyages from Angola, &c. to Brazil with very little mortality.

"So vast are the territories possessed by, or tributary to, the Portuguese on the east of Africa, that they may, or might have been said to be masters of a great part of that whole coast. They are never interrupted there by any other European nation, except occasionally by ships in distress, on their return from India; for, in going out, they steer quite another course.

"The Portuguese, however, do not appear entirely to exclude other nations from a participation in some parts of the trade of the eastern parts of Africa. For, when I was at Havre de Grace, in 1787, some slave-merchants in that city were sending a few ships to Mosambique for slaves. They told me, that, although, in the long, cold, and stormy voyage round the Cape of Good Hope, many more of the slaves died, than even in the passage from the coast of Guinea to the West Indies; yet that their cheapness at Mosambique fully compensated for their increased mortality. So coolly merchants talk of sacrificing the lives of mankind, at the shrine of the "Mammon of unrighteousness!"

"The Portuguese possessions on the east of Africa begin about 25 deg. south latitude, according to Postlethwayt. Here they trade for ivory and gold, and they abound so much with cattle, that they yearly furnish numbers to the Dutch at the Cape of Good Hope. St. Martin and Puado are two islands in the river Cumana, where the Portuguese and the natives plant provisions for the shipping, and whence they have some trade with the inland negroes.

"The kingdom of Sofala extends about 30 leagues along the coast, and about 80 up the country. It is, or was governed by a Mahometan prince, tributary to the King of Portugal. The sands of the river of Sofala have a very considerable admixture of gold-dust. The inhabitants of the town and kingdom of Sofala are a mixture of Mahometan Arabs, idolatrous Caffres, and bad Portuguese Christians.

"From the mines of Sofala, more than 2,000,000 of mericals of gold are said to be yearly extracted, the value of which, M. Savary computes at 28,000,000 livres Tournois, or £.1,166,666 sterling. These riches are divided between the Portuguese, the Arabians of Ziden and Mecca, and the native traders of Quiloa, Monbaze, and Me-

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linda. These last come in small barks, called zambucks, bringing dyed and white cottons, silks, ambergris, and succinum, or yellow and red amber. The Arabians exchange goods from the East Indies and the Red Sea, to the amount of £.140,000 sterling per annum, for ivory and gold. The merchants of Sofala also exchange European and Asiatic goods for the gold of the inland country of Monomotapa, which comes down in such quantities, that the Portuguese call the Prince of Monomotapa, *the golden emperor*.

“ On the west of Sofala is the kingdom of Mongas, chiefly remarkable for the quantity of gold it yields, particularly at Massapa, Maninas, and the mountain of Ophir, whence, it is believed, Solomon's treasures were brought. Some, however, are of opinion that Solomon brought his gold from Sumatra, on the north end of which there is likewise a mountain which to this day is called Ophir. See Bolts on Indian Affairs, Vol. I. p. 6. At Massapa, the Portuguese are settled, under the authority of the Governor of Mozambique.

“ This emporium, is on an island in latitude 150 deg. south (D'Anville.) It is extremely populous, one half of the inhabitants being Portuguese, and the rest negroes. The island abounds with cattle, poultry, fruits and provisions of all kinds; so that, in this respect, it is a very proper place of refreshment for the Portuguese East Indian ships, especially as the harbour is very good; but the air is reckoned none of the best. At Mozambique are numbers of monks, some of whom are frequently sent, by the governor, to the opposite continent; not so much, it is strongly suspected, on spiritual errands, as to dispose the natives to give his excellency good bargains of their gold, ivory, and ebony.

“ When the European goods arrive at Mozambique from Portugal, they are taxed by the king's factor, who sends them to Chilimani, at the mouth of the Senna, whence they go very far up the river to a Portuguese town, whither the Africans come, sometimes from the distance of two or three months travel, to buy, or take on credit, the European goods, for a stipulated quantity of gold, and which they faithfully bring or send. This barter yields cent. per cent. and indeed, may well be called the Chili and Peru of the Portuguese; gold being so common, that, at a month's journey from the coast, household utensils and ornaments are frequently made of it. Of the trade of Mozambique, we may form some idea from the governor's duties, which annually amount to between 60 and £70,000 sterling; exclusive of the pay of the troops and garrisons, and of a considerable tribute annually remitted to the crown of Portugal.

“ Lama, Pata, and Ampasa, on this coast, are, or were governed by chiefs dependent on the Portuguese.

“ This large country was, for many years, governed by a prince tributary to the same nation. But the circumstances are now reversed; for the Portuguese are obliged to purchase by annual presents, permission to trade, and to explore the country for gold—a revolution probably caused partly by the declension of the Portuguese power, and partly by the advancement of the natives in the arts of commerce and policy, which made them sensible both of their own interests, and
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of their own strength. The capital, likewise called Melinda, was wholly built by the Portuguese, in the latitude of 5 deg. south (D'Anville) with a very good harbour, and a strong citadel. It is a large city, said to contain 30,000 Portuguese, exclusive of natives, and 17 christian churches, besides religious houses. From their warehouses, in Melinda, they supply the country with European goods to a vast distance inland, whence they procure ivory, in such quantities as to load ships with that commodity alone. Adjoining to Melinda are five other kingdoms, all tributary to the same nation; so that, in this part of Africa alone, the Portuguese, in the zenith of their power, might have been said to hold the sovereignty of a country as large as Spain and Portugal together.

"The natives, however, carry on some trade with their own vessels, in which they frequent the Red Sea, and the ports of Arabia. They are also seen in the Indian seas, especially at Cambaya, a maritime town in the territories of the Great Mogul. The Indians and Arabians, on the other hand, sometimes bring them goods to Melinda. Yet the Portuguese ultimately transact all the trade of Melinda, which is but little inferior to that of Mozambique. Gold from Sofala, ivory, copper, quicksilver, all sorts of silks and cottons from Europe and the East Indies, spices, rice, and other grain are the chief articles brought to Melinda.

"The inhabitants of Brava consume great quantities of European manufactures; for they dress in the Portuguese manner, like the people of Quiloa, and many other parts of this coast.

"From Brava to Cape Guardafui, extends the coast of Ajan, and from thence to Rasbel, at the entrance of the Red Sea, the country is called Adel. These vast territories abound in cattle, corn, and fruits; and Ajan affords the Portuguese several whole cargoes of ivory yearly. The inhabitants are, or were, partly tributary to the Portuguese, and partly subject to Moorish and Arabian princes. After all, I find it is believed, that the natives have dispossessed the Portuguese of most of their territorial acquisitions on the continent of the east of Africa."

422. *Islands of Africa.*] The island of Madagascar, the Comora Isles, those of Socotra, La Reunion or Bourbon, France, and Mauritius or Rodrigue, all lying on the east of Africa, have been already described. (See Art. 118, 119, 120.)

On the east of Africa, there are also several islands. Some are detached, as St. Helena, Ascension, St. Matthew, &c. Others are situated in clusters, as the Cape Verd Islands, the Canaries, the Madeiras, and, in the middle of the Atlantic Ocean, the Azores or Western Islands.

"The Cape Verd Islands are generally mountainous; but their lower hills are often covered with verdure, and have a gentle declivity, with extensive vales between them. They are ill supplied with water; but Santiago has one tolerable river. The hills are covered with stones, which are a species of lava. The soil, which is fertile enough in the valleys, is a kind of rubbish of cinders and ochreous ashes: hence it is probable that all these island have contained volcanos; especially as Fogo still consists of a burning mountain.

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" Though mere deserts when the Portuguese first settled on them, they now produce several commodities for trade, as raw and dressed hides, oil extracted from tortoises, honey, wax, salt, Turkey wheat, (Indian corn or maize) oranges, lemons, &c. and supply vessels with tame and wild fowls. Cattle are in such plenty, that several ships are employed in carrying them to Brazil, whither they also convey quantities of fish, caught and salted near Cape Verd. He might have added, that these islands supply the West Indian sugar colonies with great numbers of cattle, asses, and mules, and that, at Santiago, the inhabitants manufacture cloths of cotton and of silk. They are very beautiful articles, and are commonly called in England, " St. Jago cloths," a name, however, often applied to " Guinea cloths," or those fabricated by the negroes on the continent of Africa.

" From the varieties of soil, climate, and exposure in the Canary Islands, the valuable productions, of temperate and tropical countries, thrive in it. The animals are camels, deer, horses, asses, mules, cows, sheep, goats, hogs, rabbits, fowls, geese, ducks, &c. The island of Teneriffe rises on all sides towards the Pike, in it's centre, like a hanging garden, till within a league of the clouds, which are not above mid-way up the Pike. But there are no houses any where above three leagues from the sea. The first league from the shore produces vines, the next corn, the third woods of chestnut trees, &c. interspersed with some corn. Beyond these woods are the clouds, which, in fine weather, come down in the evening, and rest on the woods till morning, when they retire about a league. Where the clouds rest in the day, there are many pine-trees, beyond which grows no grass or vegetable, except a shrub called *retama*.

" Of the Canary Islands, which are seven in number, Teneriffe is the most considerable. It is about 36 leagues in circumference. The latitude of it's centre is 28 deg. 30 min. N. longitude 16 deg. 25 min. W. from London.

" The principal differences in the climates of these islands, arise from their different elevations above the sea. For eight months in the year, the summits of them all, except Lancerota and Fuerteventura, are covered with snow. Yet, in their valleys and shores, the cold is seldom so great as to render fires necessary. A very great proportion of the surfaces of all the Canaries is covered with lava, calcined stones, and black dust or ashes, formerly emitted by volcanos, the remains of which are still very visible in all the islands, and some of them, among which is the Pike of Teneriffe, are not yet extinguished.

" The present inhabitants of these islands, who amount to near 200,000, are descended from a mixture of the Spanish conquerors and the aborigines, on whom the government of that period conferred equal privileges. In consequence of this wise and humane policy, the Spaniards easily incorporated with the natives; so that their posterity have long formed but one people.

" Two of the three isles of Madeira, being small, are seldom noticed. Madeira, properly, is about 55 miles long and 10 broad. It consists of one large mountain, whose branches rise every where from the

the sea towards the centre, where there is an excavation, from which, and from the greater part of the stones being lava, it appears that a volcano has formerly existed here.

"Many rivulets descend, from the summit, in deep chasms, or glens. Their beds are, in some places, covered with stones, brought down by the winter torrents of rain and melted snow. The water is conducted by weirs into the vineyards, where some have it constantly, and others once, twice, or thrice a week. The heats rendering irrigation absolutely necessary, the planters of new vineyards are obliged to pay dear for water to those who have a constant supply.

"Wheat and barley are sown, where the vines are decaying from age, or are newly planted. But, as the crops do not afford above three month's provisions, corn is imported from America, in exchange for wine. About 30,000 pipes of it, from 110 to 120 gallons, are made, upon a mean, every year. About 13,000 pipes of the better sorts are exported, and the rest made into brandy and vinegar, or consumed at home. The vineyards are inclosed with walls, and hedges of prickly pear, pomegranates, myrtles, brambles, and wild roses. The gardens produce all the European fruits, with, now and then, some tropical ones, as bananas, guavas, and pine-apples.

"All the domestic animals of Europe are found at Madeira. The mutton and beef are small, but well tasted. The horses, though not large, are sure footed; and climb with agility, the difficult paths of the island. There are no wheel-carriages of any kind: but in the town, they convey heavy goods on sledges drawn by oxen. The only wild quadruped here is the grey rabbit. Many wild birds, common in Europe, are found in Madeira; but very few hens, or other tame birds, owing, perhaps, to the scarcity of corn. There are no snakes whatever in this island; but the vineyards and gardens, and even the houses, swarm with lizards. The shores are not without fish; but, as they are not in sufficient plenty for the Lent season, "herring," says Dr. Forster, "are brought from Gothenburg, and cod from North America."

"The country people are very sober and frugal; their diet being generally bread and onions, or other roots, with little animal food. Their drink is water, or a fermented infusion of the refuse rind of the grape; for the wine, which their own hands prepare, they seldom, if ever, taste. Their chief occupation is raising vines; but as this requires not much attendance, for a great part of the year, they naturally incline to idleness. Indeed, warmth of climate, where great provision against inclemency of weather is unnecessary, and where hunger is easily satisfied, will probably produce indolence, where the legislature does not counteract it by encouraging industry. But, it seems, the Portuguese legislators are not thus disposed; for, though they have lately ordered olive-trees to be planted here, on spots too dry and barren for vines, they have given the labourers no temporary assistance, and have offered no premiums, to overcome their reluctance to innovation, and to labour."

The Azores, or as they are called, the Western Islands, are nine in number, and are situated between 25 and 32 deg. west long. and be-

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tween 37 and 40 north lat. 900 miles west of Portugal, and as many east of Newfoundland, lying almost in the mid-way between Europe, Africa, and America. They were discovered in the middle of the fifteenth century, by Joshua Vander Berg, a merchant of Bruges in Flanders, who, in a voyage to Lisbon, was, by stress of weather driven to these islands, which he found destitute of inhabitants, and called them the Flemish Islands. On his arrival at Lisbon, he boasted of this discovery, on which the Portuguese set sail immediately, and took possession of them; they were called in general the Azores, from the great number of hawks and falcons found among them. All these islands enjoy a very clear and serene sky, with a salubrious air; but are exposed to violent earthquakes, from which they have frequently suffered: and also by the inundation of surrounding waves. They are, however, extremely fertile in corn, wine, and a variety of fruits, also cattle, fowl, and fish.

423. *New Plan for exploring Africa.*] The African Association of London, persevering in their design of exploring the interior parts of that continent, have equipped two vessels for a new expedition; and they are to be assisted by the British government with the sum of 6000l. sterling. Taking for granted, that Goree has been abandoned by the French, the adventurers are first to proceed thither, where they will find a town ready built, and fitted for every purpose of health and accommodation in a hot climate. From this first station they propose to sail for Fataatenda, on the river Gambia, beyond which vessels of any considerable burden cannot conveniently proceed. From Fataatenda some of the party are to proceed to Bambouk, and from that to endeavour to penetrate to the river Niger, or to the city of Tombuctoo.—The chiefs of the country are to be engaged to assist in the undertaking, but with a precaution which has never before been taken: they are to receive no previous douceurs, and no rewards whatever, till they shall produce certificates, or other proofs, that they have actually performed their engagements; and then they will be paid the rewards stipulated on board the vessels, or at the places where the goods are secured.

Such was the plan of the African Association. It has been, in part, executed. Mr. Lucas, Major —, and more recently, Mr. Mungo Park, have travelled into the interior parts of Africa. Mr. Park reached the Niger. His travels have been recently given to the world in a Narrative, by himself. They in part confirm, in part correct our former knowledge of these parts. They open to us new hopes of the extension of commerce, and the civilization of the world.

P A R T IX.

DESCRIPTION OF AMERICA.

AMERICA is the last, but most extensive quarter of the globe. It was in the latter end of the fifteenth century, when the Portuguese had discovered the passage to India by the Cape of Good Hope, and thus deprived the Italian states of those lucrative emoluments which they obtained in furnishing Europe with the costly articles of India, which they received by way of the Red Sea, that America was unfolded to the view of the European states. At that time they generally acknowledged the supremacy of the Pope. The Roman Pontiff was unacquainted with the figure of the earth, and had granted a bull to the Portuguese, entitling them to all the lands, islands, &c. they had or should discover to the eastward of the meridian of the Azores. Christopher Columbus, a native of Genoa, proposed to his countrymen to evade the force of the bull, and retrieve a part of their lost traffic, by sailing to India by a western course. They were not better geographers than the bishop of Rome; they treated his schemes as the reveries of a madman. Disappointed here, he applied successively to the courts of Lisbon, Paris, and London, but without success. His last resource was to the court of Spain; here his proposals were received with candour, but with caution. At last, after about eight years attendance, by the particular countenance of the queen Isabella, who raised the money necessary for the design on her own jewels, in 1492, with a fleet of three ships, and the title and command of an admiral, Christopher sailed from Spain.

Without charts to direct him, or lights from former navigators, without experience of the winds or currents peculiar to that prodigious tract of sea which lay before him, he launched at once into the boundless ocean. Anxious, no doubt, were his own feelings on this adventurous voyage; his companions were discouraged, and began to be mutinous. To increase their despondence, it was observed that the compass varied from its former position. The pilots were struck with terror. He still had hopes, and for a while endeavoured to appease and encourage his fellows with the accidental appearances of land birds and floating sea weeds. At length, when hope seemed ready to leave them all, when the crew began to insist on his returning, and even threatened to throw him overboard, after a voyage of thirty-three

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three days, they discovered the land, which put an end to the commotions.

Columbus first landed on one of the Bahama Islands, but there, to his surprise and sorrow, discovered, from the poverty of the inhabitants, that these could not be the Indies he was in quest of. In steering southward, however, he found the island called Hispaniola, abounding in all the necessaries of life, inhabited by a humane and hospitable people; and what was still of greater consequence, as it insured his favourable reception at home, promising, from some samples he received, considerable quantities of gold. This island, therefore, he proposed to make the centre of his discoveries; and having left upon it a few of his companions, as the ground-work of a colony, returned to Spain to procure the necessary reinforcements.

The court was then at Barcelona: Columbus travelled thither from Seville, amidst the acclamations of the people, attended by some of the inhabitants, the gold, the arms, utensils, and ornaments of the country he had discovered. This entry into Barcelona was a species of triumph more uncommon, and more innocent than that of conquerors. In this voyage he had acquired a general knowledge of all the islands in that great sea which divides North and South America; but he had no idea that there was an ocean between him and China. The countries which he had discovered were considered as a part of India. Even after the error, which gave rise to this opinion, was detected, and the true position of the New World was ascertained, the name has remained, and the appellation of *West Indies* is given by all the people of Europe to the country, and that of *Indians* to its inhabitants.

In a subsequent voyage, this great adventurer discovered the American continent. For a while caresses were heaped upon him, but he lived to be treated like a traitor in the very country he had discovered, and was ignominiously sent over to Europe in chains. Here, however, he was honourably acquitted, and had the happiness to reflect that his adventures had been untainted with cruelty or plunder, vices which so horridly deformed the acts of succeeding adventurers.

The extensive continent of America reaches from the fifty-sixth degree of south latitude, to the impenetrable regions of ice and snows of the northern frigid zone, where it nearly extends through every degree of western longitude from London. On the east, it is bounded by the great Atlantic Ocean; its western shores and southern extremity are washed by the Pacific and vast South Sea. It is in length, from north to south, about nine thousand miles, and varies from its greatest breadth of three thousand six hundred and ninety miles, to that of sixty, at the Isthmus of Darien, where America is divided into north and south.

The following tables contain the divisions of both North and South America.

NORTH AMERICA.

Countries.	Length.	Breadth.	Chief Towns.	Latitude.	Longitude from Greenwich.	
					in Degrees.	in Time.
	miles	miles		D. M. S.	D. M. S.	H. M. S.
New Britain, or Esquimaux, Greenland, and the western parts, but little known.						
Canada	800	200	Quebec	46 55 ° N.	69 53 ° W.	4 39 30 aft.
Nova Scotia	350	250	Halifax	44 45 ° N.	64 30 ° W.	4 18 ° aft.
United States	1390	700	Philadelphia	39 57 ° N.	75 8 ° W.	5 0 ° aft.
E. Florida	500	440	St. Augustine	30 8 ° N.	81 10 ° W.	5 25 ° aft.
W. Florida			Pensacola	30 32 ° N.	87 20 ° W.	5 49 ° aft.
Louisiana, bounds unkn.			New Orleans	30 0 ° N.	87 5 ° W.	5 48 ° aft.
N. Mexico, and California	2000	1600	St. Fee St. Juan	35 32 ° N.	105 0 ° W.	7 0 ° aft.
Mexico, or New Spain	2000	600	Mexico	19 54 ° N.	100 5 ° W.	6 40 ° aft.

SOUTH AMERICA.

Terra Firma	1400	700	Panama	8 48 ° N.	80 28 ° W.	5 22 ° aft.
Peru	1800	500	Lima	12 1 ° S.	76 49 ° W.	5 7 ° aft.
Amazonia	1200	960	Little known to Europeans.			
Gujana	780	480	Surinam	6 0 ° N.	55 30 ° W.	3 42 ° aft.
			Cayenne	4 56 ° N.	52 15 ° W.	3 29 ° aft.
Brazil	2500	700	St. Sebastian	22 59 ° S.	44 16 ° W.	2 57 ° aft.
			St. Salvadore	12 0 ° S.	38 0 ° W.	2 32 ° aft.
Paraguay, or La Plata	1500	1000	Assumption and	34 10 ° S.	60 40 ° W.	4 3 ° aft.
			Buenos Ayres	34 35 ° S.	58 31 ° W.	3 54 ° aft.
Chili	1200	500	St. Jago	33 40 ° S.	77 0 ° W.	5 8 ° aft.
Terra Magellanica, or Patagonia, not colonized by Europeans, 700 L. 300 B.						

PRINCIPAL NORTH AMERICAN ISLANDS.

Names.	Chief Towns.	In Possession of	Names.	Chief Towns.	In Possession of
Newfoundland	Placentia	English.	Tobago		English
Cape Breton	Louisbourg		Cuba	Havannah	Spaniards
St. John's	Charlotte Town		Hispaniola	St. Domingo	Spain and France
Bermuda Ids.	St. George		Porto Rico	Porto Rico	Spaniards
Bahama Ids.	Nassau		Trinidad		Spaniards
Jamaica	Kingston		Margarita		Spaniards
Barbadoes	Bridgetown		Martinico	St. Peter's	English
St. Christophers	Basseterre		Guadaloupe	Basseterre	French
Antigua	St. John's		St. Lucia, St.		English
Nevis	Charles Town		Bartholomew,		English
Montserrat	Plymouth		Defeada, and		English
Barbuda			Marigalanta		English
Anguilla			St. Eustatia		Dutch
Dominica			Curassou		Dutch
St. Vincent	Kingston		St. Thomas		Danes
Granada	St. George		St. Croix	Basse-End	Danes

N. B. The war renders the possession of several of these isles, for the present, considerably uncertain.

SECTION

SECTION LIII.

American Islands.

424. *West Indies.*] The West India Islands was the first part of America discovered by the Europeans. They are situated in a large gulf, called the Caribbean Sea, between the continents of North and South America, stretching from the coast of Florida to the river Orinoko, and are divided between five European nations, viz. the English, Spaniards, French, Dutch, and Danes.

The climate, allowing for those accidental differences, which the several situations and qualities of the land themselves produce, is nearly the same throughout all the West India islands lying within the tropics. They are exposed to a heat which would prove intolerable, did not the trade wind, as the rising sun gathers strength, blow on them from the sea, and refresh the air in such a manner as to render the noon-day heat less intense than might be expected. On the other hand, as the night advances, a breeze begins to rise, which blows as if it proceeded from the central point of each island to all quarters at one and the same time. Vast bodies of clouds also screen the inhabitants from the scorching rays of the vertical sun.

Their rains are different from ours; they are rather floods than showers. The waters pour down from the clouds with amazing impetuosity; the rivers swell in a moment; new brooks and lakes are formed, and in a short time all the low country is totally under water. These rains mark out the seasons in the West Indies, where the whole year is properly a continued summer. The trees are always covered with leaves; frosts and snows are unknown; and indeed the same description may be applied to all the torrid zone.

The consequences of these storms, however, are trifling, when compared to those that attend the hurricanes, to which this part of the world is very subject; by these the assiduous labour of many years is often destroyed in a moment. The hurricane is a violent gust of wind, rain, thunder, and lightning, attended with a dreadful swelling of the sea, and sometimes with an earthquake. As a prelude to the approaching havock, the astonished planter sees whole fields of sugar-canes whirled into the air, and scattered over the face of the adjacent country. The strongest trees of the forest are torn up by the roots, and driven about like stubble; the windmills are swept away in a moment; their utensils, their fixtures, the ponderous copper boilers, and still of several hundreds weight, are wrenched from the ground, and battered to pieces; their houses fail to give their wonted protection.

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the roofs are torn off, and the rain rushes in with a violence almost irresistible, or perhaps all is tumbled down together in one promiscuous ruin.

The inhabitants have some forewarning of this uproar of the elements. Thus, if at the change of the moon the sky appears very turbulent, the sun redder than at other times, a dead calm succeeds instead of the usual breezes; the hills are clear of those clouds and mists which usually hover about them; if a hollow rumbling sound, like the rushing of a violent wind, is heard in the wells and clefts of the mountains, the stars at night appear larger than usual, and surrounded with a sort of bur; the sky, in the north-west, has a black and menacing appearance; the sea emits a strong smell, and rises into vast waves, often without any wind; the wind itself forsakes its steady stream from the east, and shifts to the west, blowing violently and irregularly at intermissions:—These signs predict that a hurricane will happen at the succeeding full. Nearly the same signs happen at the full, before a hurricane comes on at the change: and, by these indications the planters often secure some part of their effects, together with the lives of themselves and those of their families.

Sugar and rum are the staple commodities of the West Indies. The sugar is the essential salt of the plant, extracted from the juice by boiling, scumming, and crystallization. The rum is distilled from the molasses, and the dregs of the juice, after the salt is purified.

The Portuguese were the first who cultivated the sugar-cane, and their first plantations were in the Madeira islands, but afterwards removed to Brasil, and since diffused over the different islands of the West Indies. The variety of tropical fruits flourish here, as lemons, oranges, limes, citrons, dates, pomegranates, tamarinds, grapes, pine-apples, bananas, coffee, guavas, plantains, cocoa-nuts, and the cocoa or chocolate. They produce a variety of fine woods, dyes, gums, drugs, spices, even nutmeg and cinnamon trees are said to be found in the West Indies; a variety of other vegetables also, as indigo, tobacco, cotton, silk-grass, &c. grow here.

The animals are, horses, asses, mules, black cattle, goats, sheep, and hogs, opossums, racoons, and rabbits. Of wild and tame fowls there is a great variety, as ducks, teal, widgeons, geese, turkeys, pigeons, guinea-hens, plovers, flamingoes, and snipes; various kinds of parrots, paroquets, and the beautiful humming-bird. The bays and rivers abound in turtle, and a variety of fish, as the mountains do in serpents and other noxious animals.

Sugars, rum, cotton, indigo, chocolate, coffee, dying and physical drugs, spices, and hard woods, form the principal exports of these islands. From the neighbouring American continent they import lumber and provisions; from Europe, manufactures; wines and slaves from the African islands. Jamaica, the largest of the British West India Isles, is computed to produce annually 70,000 tons of sugar, more than 400,000 gallons of rum, besides coffee, cocoa, indigo, and pepper.

425. *Bahamas.*] The Bahama islands, which are said to be five hundred in number, though some of them are merely rocks, lie to the north of Carolina, between twenty-one and twenty-seven deg. north

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427. *Newfoundland.* Breton, and are celebrated coasts. The Newfoundland several large constantly visited, and mild, and The coast forms of fish beheld in and barren rich. The found in the woods, island is called the Banks three thousand which, as fish, upwards supposed to which is rich north, in St. Very poor New Scotland

latitude, and seventy-three and eighty-one west longitude. They extend along the coast of Florida, as far as the Isle of Cuba. Twelve of them, however, are large and fertile, but, except Providence Isle, they are almost uninhabited.

426. *Bermudas.*] The Bermudas, or Summer Islands, which lie in the vast Atlantic Ocean, lie about five hundred leagues east from Carolina, in thirty-two deg. north latitude, and in sixty-five deg. west longitude, are a cluster of small islands, said to be four hundred in number, and containing collectively only about twenty thousand acres. The air is extremely salubrious, and the beauty and richness of the vegetable productions are as great as can well be conceived. Though the soil is excellently adapted to the cultivation of vines, the chief employment of the inhabitants, who are supposed to be near ten thousand, consists in the building and navigating little sloops and brigantines, which they occupy principally in the West Indian and North American commerce. These vessels are equally remarkable for their swiftness, and the durability of the cedar wherewith they are constructed.

St. George, the capital, is situated at the bottom of a haven in an island of the same name; it has seven or eight forts, mounting seventy pieces of cannon, contains above a thousand houses, a handsome congregation-house, and other elegant public buildings.

427. *Newfoundland, &c.*] The islands of Newfoundland, Cape Breton, and St. John, lie at the mouth of the great St. Lawrence river, and are celebrated for the prodigious shoals of fish that surround their coasts. The forests are extensive, and the animals various and many. Newfoundland is watered by many spacious rivers, and furnished with several large and excellent harbours. About five thousand Europeans constantly reside on the island. The chief towns are Placentia, Bonaville, and St. John. The Indians, or natives, are said to be a gentle, mild, and tractable people, easily gained by civility and good usage. The coasts are extremely subject to fogs, frequently attended with storms of snow and sleet, and the beauties of a serene sky are seldom beheld in this island. The soil, in most parts of the island, is rocky and barren, but in some of the valleys on the southern coast deep and rich. The vegetable productions are but few; a kind of wild rye is found in some of the valleys; strawberries and raspberries are found in the woods, which also supply a quantity of excellent timber. But the island is chiefly valued for its great cod fishery on those shoals called the Banks of Newfoundland. In this branch of commerce, upwards of three thousand sail of small craft are annually employed; on board of which, as well as on shore, for the purpose of curing and packing the fish, upwards of ten thousand hands are employed. This fishery is supposed to increase the national stock upwards of 300,000l. annually, which is remitted to England in gold and silver, for cod sold in the north, in Spain, Portugal, Italy, and the Levant.

Very profitable fisheries are likewise carried on along the coasts of New Scotland, New England, and the Isle of Cape Breton.

SECTION LIV.

British America.

The vast continent of America, extending from the impenetrable frozen regions of the arctic, to a high latitude in the southern hemisphere, as it experiences all the varieties of climate which the earth affords, its soils are various, and it produces most of the metals, minerals, herbs, fruits, and wood, to be met with in the other quarters of the globe, and many of them in the greatest quantities and perfection.

Its mountains, lakes, and rivers, are the largest in the world.

To begin on the north with the most extensive quarter of the globe, the parts of it which lie within the arctic circle are very little known, few European adventurers having penetrated so far; their farthest discoveries have never ascertained whether Greenland is an insular country, or a part of this vast continent: Greenland has already been described as a part of the territories of Denmark.

428. *Divisions.*] The continental territories of the English in America comprehended New Britain, or the country of the Esquimaux, the provinces of Upper and Lower Canada, and Nova Scotia or Acadia. On the east and south, they are bounded by the Atlantic and the American states; on the west and north, their boundaries are undefined, and blended with the lands of Indian nations and American wilds.

429. *Climate, Produce.*] Far to the north, the hardy pine tree, the only evergreen of polar regions, is no longer seen: and the cold womb of the earth seems incapable of giving life to any other productions than a few blighted shrubs. The accumulating snows, which cover the mountains of those solitary and desert tracts, together with the winds which blow from thence near three quarters of the year, occasion a severity of cold in this part of the world even in latitudes which are moderate and pleasant in Europe. A principal part of this extensive country lies in the same latitude with France; but its natural history nearly answers the description of Norway or Sweden. The winters are long and severe; the summers short, warm, and pleasant. In many places, corn, as well as fruits and other vegetables are produced; the meadow lands, which are well watered, yield the most luxuriant pasturage for vast numbers of great and small cattle, and tobacco in particular is much cultivated, and seems perfectly congenial to the soil. Here also are the most ancient and extensive forests in the world, producing the various species of pines, firs, cedars, oaks, maple, ash, walnut, beech, elm, and poplar.

430. *Animals.*] The animals of British America are also similar to those of the northern countries of Europe, as buffaloes, bears, tigers, wolves,

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wolves, moose deer, stags, rein-deer, goats, foxes, beavers, otters, lynxes, martens, squirrels, ermines, wild cats, ferrets, weasels, hares, and rabbits.

Of the feathered tribe there are numbers of eagles, falcons, goshawks, tercelts, ravens, owls, woodcocks, snipes, blackbirds, swallows, larks, thrushes, finches, immense flocks of geese, swans, ducks, cranes, bustards, partridges, and almost every species of wild fowl.

Among their reptiles the rattlesnake is the most remarkable.

Of sea fish there are whales, morises, sea wolves, sea cows, porpoises, cod fish, herrings, anchovies, pilchards, and various other kinds, and in the rivers and lakes there are pike, perch, carp, trout, &c.

431. *Rivers, Lakes, Bays.*] The rivers, lakes, and bays in this part of the world are numerous, large, and deep. The rivers here, which, from their magnitude might claim, if in other countries, particular mention, appear diminutive, if compared with the great river St. Lawrence, in which, indeed, many of them are ultimately absorbed. The same may be said of many capacious lakes, when compared with those inland seas, the lakes of Canada; they are five in number, the Ontario, Erie or Oswego, Huron, Michigan, and Lake Superior; the smallest of which is no less than two hundred leagues in circumference; and Lake Superior, by far the most spacious, and containing several large islands, is at least fifteen hundred miles in circuit. These lakes give rise to several vast rivers, particularly the Mississippi, which runs from north to south till it falls into the Gulf of Mexico, after a winding course of four thousand five hundred miles, receiving in it's progress the Illinois, the Misfaures, the Ohio, and other great rivers, scarcely inferior to the Rhine or the Danube; and on the north the great river St. Lawrence, which runs a contrary course from the Mississippi, till it empties itself into the ocean near Newfoundland, after receiving the Outawais, the Champlain, Trois Rivières, Despaires, Seguinay, St. John's, and several other rivers, and becoming at it's mouth about ninety miles wide. All these lakes are navigable by the largest vessels, and have a communication with each other; except that the passage between Erie and Ontario is interrupted by a stupendous fall or cataract, called the Falls of Niagara. Where the rock crosses it, it is about half a mile broad, and from the bend of the cliff describes a crescent; when it comes to the perpendicular fall, which is one hundred and fifty feet, words cannot express the sensations occasioned by seeing such a vast body of water violently thrown from so amazing an elevation on the rocks below, from which it again rebounds to a very great height; and from it's being converted into foam by these violent agitations, appears as white as snow. The noise of this fall is often heard at the distance of fifteen miles, and sometimes much farther; and the vapour arising from it, which resembles a cloud or pillar of smoke, may also be seen at a very considerable distance, and it is varied like the rainbow, whenever the sun and the position of the traveller are proper for producing that phenomenon. Beasts and fowls frequently lose their lives in attempting to swim across, and are found dashed to pieces below; and sometimes Indians, either through carelessness or inebriety, meet the same tremendous fate; which cir-

cumstances draw great numbers of birds of prey to the place to feast on the dead bodies.

432. *New Britain.*] New Britain, which is commonly called the country of the Esquimaux, comprehends Labrador, New North and South Wales. It is said to be 850 miles long, and 750 miles broad. Our first knowledge of this part of the world originated from a project started in England for the discovery of a north-west passage to China and the East Indies. Frobisher, and after him Davis, were the first adventurers in this hardy navigation, and the Streights which they discovered still bear their names. Early in the seventeenth century, Hudson made three voyages on the same adventure: he entered the Streights which lead into that immense bay, which, together with the Streights, still bear his name; he coasted a great part of this new Mediterranean, and penetrated as far as eighty and a half deg. into the heart of the frozen zone; but was at last, with seven of his faithful adherents, committed by the crew, in an open boat, to the perils of the icy seas: these hardy adventurers were never more heard of, but the crew returned to Europe. The last discoveries of Cook seem to prove that this much-desired navigation is altogether impracticable.

The Hudson's Bay company employ four ships and one hundred and thirty seamen: they have four forts, viz. Churchill, Nelson, New-Severn, and Albany, which stand on the western shore of the bay, and are garrisoned by one hundred and eighty-six men. They barter English commodities with the Indians for furs and peltry. The rudest workmanship meets with admirers among these uncultivated people, and the most faulty goods find a ready market; on the other hand, the skins and furs enter largely into English manufactures, and afford materials for opening a beneficial commerce with several European nations. The annual imports in furs, &c. from Labrador and Hudson's Bay, amount to the value of about 88,000l. sterling.

433. *Canada.*] The only towns of importance in Lower Canada are Quebec, Trois Rivières, and Montreal, all situated on the river St. Lawrence, by means of which an extensive commerce is carried on, employing about sixty ships, and one thousand seamen annually, though it is much interrupted by the severe winters, when the largest rivers are frozen over, and the ports consequently blocked up. Their exports are skins, furs, ginseng, snakeroot, cappillaire, wheat, &c. their imports the manufactures of Europe, and the produce of the West India islands.

Near Quebec is a fine lead mine; the whole country abounds in coals, and it is asserted that silver is found in the mountains.

The back parts of the province of Canada, which remained open to the wanderings of the Indians, till after the American war, have been since erected into the province of Upper Canada, and subjected to the authority of a particular governor and provincial legislature. Both Upper and Lower Canada are now in a rapid progress of population, by the influx of emigrants from the United States. These emigrants are driven away to Canada by political discontents, by poverty, by restlessness. They meet a favourable reception from the governors of Canada; are immediately admitted to settlements: and after a short time of probation has shewn, that they are likely to become good subjects,

subjects, of those New towns these vast as to render intercourse to the province receive an

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subjects, and useful colonists, obtain, without purchase, liberal grants of those lands, which still remain in the possession of the government. New towns are continually rising on the lakes, in the inland parts of these vast provinces. The advantages for inland navigation, are such as to render the remoteness of the sea no impediment to the trading intercourse of the inhabitants of these parts. A recent cession of territory to the United States, has somewhat contracted the limits of the province of Upper Canada. But its extent is still sufficient to receive an immense additional population.

The fur trade with the native Indians is the great means of opulence to the merchants of Lower Canada. It employs a great number of persons, who proceed up the rivers in small vessels; passing frequent cataracts, which oblige them to convey their boats and goods over land. They are forbidden to sell spirituous liquors to the Indians for their furs. But, at the meetings for traffic, they commonly begin with entertaining the Indians with drams, till these poor people are intoxicated. The furs are then purchased much cheaper. These furs are imported into Britain to an amount that rises to nearly 200,000l. a year. They are so valuable in commerce, that the region which furnishes them may be regarded, as one of our best possessions.

434. *Nova Scotia.*] The inhabitants of Nova Scotia export all sorts of lumber, such as planks, staves, hoops, and joists, together with immense quantities of fish; the latter, indeed, is their staple commodity, and employs a great number of hands; their imports are the produce of the West India islands, and the commodities of Europe.

The principal towns in Nova Scotia, are Halifax on Chebucto Bay. Annapolis on Fundy Bay, St. John's on the mouth of a river of the same name; but the most recent establishment, and which bids fair to become the most opulent, is that of Shelburne town, founded by the American loyalists or refugees.

SECTION LV.

United States.

4. *Divisions, Boundaries, &c.*] The United States are bounded on the west by numerous Indian nations; on the north by British America; on the west by the Atlantic; and on the south by Spanish America. Their divisions, dimensions, number of inhabitants, &c. are exhibited in the following table:

<i>Names and States of Colonies.</i>	<i>Length.</i>	<i>Breadth</i>	<i>No. of Inhabi- tants.</i>	<i>Census taken.</i>	<i>Chief Towns.</i>	<i>Distance and bearing from Philadelphia.</i>		
New Hampshire	180	60	102,000*	1787	Portsmouth	408	—	N.E.
Massachusetts	450	164	360,000*	1787	Boston	343	—	N.E.
Rhode Island	68	40	51,896	1783	Newport	280	—	E.N.E.
Connecticut	81	57	209,150	1782	Newhaven	181	—	N.E.
New-York	350	300	238,897	1786	New York	95	—	E.N.E.
New Jersey	160	52	149,435	1784	Trenton	30	—	N.E.
Pennsylvania	288	156	360,000*	1787	Philadelphia			
Delaware	92	16	37,000*	1787	Dover	72	—	S.S.W.
Maryland	134	110	253,630	1782	Annapolis	132	—	S.W.
Virginia	758	224	567,614	1782	Richmond	276	—	S.W.
North Carolina	758	110	270,000*	1787	Edenton	442	—	S.S.W.
South Carolina	200	125	180,000*	1787	Charleston	814	—	S.S.W.
Georgia	600	250	98,000*	1787	Augusta	934	—	S.W.
Vermont	155	60	100,000*	1788	Bennington	299	—	N.E.
Western Territory,	1000	450	6,000*	1788	Adelphi	492	—	W.
Kentucky	{ included in Virginia		100,000*	1788	Lexington	947	{ by awter	W.
Total - -			3,083,622					

N. B. In the column containing the number of inhabitants, the numbers marked [*] are as reckoned in the Convention at Philadelphia, in 1787, except North Carolina, Vermont, Western Territory, and Kentucky; the others are taken from actual enumeration.

The distances of the several capitals from Philadelphia are reckoned as the roads run.

The United States were thirteen in number at the time of their first association, in 1776; since that time Vermont, Kentucky, and Western Territory have been added; the last of which is of such vast extent, that it is intended by Congress that it shall be divided into ten new states, to be called Washington, Metropotamia, Pefilippi, Michigan, Illinoia, Chersonefus, Saratoga, Sylvania, Affenipi, and Polypotamia. These ten states, (spreading over an immense tract of land) are traversed by the great river Ohio, in a course of 1200 miles, receiving into it's waters the innumerable rivers which are scattered over the whole country. On the north they are bounded by the five great lakes, Superior, Michigan, Huron, Erie, and Ontario; which empty themselves into the river St. Lawrence. On the east they have the states of New-York, Pennsylvania, and Virginia, whose navigation (as well as the St. Lawrence) affords them a direct communication with the Atlantic Ocean. On the south they are partly bounded by the mountains, and on the west by the vast river Mississippi, (whose source is unknown) and which, after flowing through the great continent of America, admitting into it's swelling waves the tributes of a thousand waters, falls into the Gulf of Mexico.

From the best account that can at present be obtained, there are within the limits of the United States, three millions, eighty-three thousand, and six hundred people. This number, which is rapidly increasing both by emigrations from Europe and by natural population, is composed of people of almost all nations, languages, characters, and religions.

religions. The greater part, however, are descended from the English; and, for the sake of distinction, are called Anglo-Americans.

The English language is the one which is universally spoken in the United States, in which business is transacted, and the records kept.

Intermingled with the Anglo-Americans are the Dutch, Scotch, Irish, French, Germans, Swedes, and Jews; all these, except the Scotch and Irish, retain, in a greater or less degree, their native language, in which they perform their public worship, converse, and transact their business with each other.

In describing this part of the world, the accounts are principally taken from American geographers. We may commence with a history of the settlements from the time that the wretched people of Europe first fled or adventured to the 'wilderness,' take a view of the revolt of the British colonies, and of the constitution adopted by them since they formed United States, and then enter into a brief description of the states separately. As they yet offer an asylum to the oppressed Europeans, their history is peculiarly interesting.

435. *Settlements of North America in chronological Order.*] North America was discovered in the reign of Henry VII. a period when the arts and sciences had made very considerable progress in Europe. The same which Columbus had acquired by his first discoveries on this western continent, spread through Europe, and inspired many with the spirit of enterprise. As early as 1496, four years only after the first discovery of America, John Cabot, a Venetian, obtained a commission from Henry VII. to discover unknown lands, and annex them to the crown.

In the spring he sailed from England with two ships, carrying with him his three sons. In this voyage, which was intended for China, he fell in with the north side of Terra Labrador, and coasted northerly as far as the 67th degree of latitude.

1497.] The next year he made a second voyage to America, with his son Sebastian, who afterwards proceeded in the discoveries which his father had begun, and discovered Bonaville, on the north-east side of Newfoundland. Before his return he traversed the coast from Davis's Straits to Cape Florida.

1502.] Sebastian Cabot was this year at Newfoundland; and on his return brought three of the natives of that island to Henry VII.

1513.] In the spring of 1513, John Ponce sailed from Porto Rico northerly, and discovered the continent in 30 degrees 8 minutes north latitude. He landed in spring, a season when the country round was covered with verdure, and in full bloom. This circumstance induced him to call the country FLORIDA, which, for many years, was the common name for North and South America.

In 1516, Sebastian Cabot and Thomas Pert explored the coast as far as Brazil, in South America.

This vast extent of country, the coast whereof was thus explored, remained unclaimed and unsettled by any European power, (except by the Spaniards in South America) for almost a century from the time of its discovery.

1524.] It was not till the year 1524 that the French attempted discoveries on the American coast. Stimulated by his enterprising neighbours,

neighbours, Francis I. sent John Verrazano, a Florentine, to America, for the purpose of making discoveries. He traversed the coast from latitude 28 deg. to 50 deg. north. In a second voyage, some time after, he was lost.

1525.] The next year Stephen Gomez, the first Spaniard who went upon the American coast for discovery, sailed from Groyn in Spain, to Cuba and Florida, thence northward to Cape Razo, in latitude 46 degrees north, in search of a north-west passage to the East Indies.

1534.] In the spring of 1534, by the direction of Francis I. a fleet was fitted out at St. Malo's in France, with design to make discoveries in America. The command of this fleet was given to James Cartier. He arrived at Newfoundland in spring; thence he sailed northerly; and on the day of the festival of St. Lawrence, he found himself in about latitude 48 degrees 30 minutes north, in the midst of a broad gulf, which he named St. Lawrence. He gave the same name to the river which empties into it. In this voyage, he sailed as far in north latitude as 51 degrees, expecting in vain to find a passage to China.

1535.] The next year he sailed up the river St. Lawrence 300 leagues, to the great and swift *Fall*. He called the country New France; built a fort, in which he spent the winter, and returned in the following spring to France.

1542.] In 1542, Francis la Roche was sent to Canada by the French king, with three ships, and 200 men, women, and children. They wintered there in a fort which they had built, and returned in the spring. About the year 1550, a large number of adventurers sailed for Canada, but were never after heard of. In 1539, Ferdinand de Soto, with 900 men, besides seamen, had sailed from Cuba, having for his object the conquest of Florida, and arrived at Spirito Santo; hence he travelled northward 450 leagues from the sea. Here he discovered a river a quarter of a mile wide, and 19 fathoms deep, on the banks of which he died, and was buried, in 1542.

In 1543, Alverdo, his successor, built seven brigantines, and the year following embarked upon the river. In 17 days he proceeded down it 400 leagues, where he judged it to be 15 leagues wide. From the largeness of the river at the place of his embarkation, he concluded it's source must have been at least 400 leagues above, so that the whole length of the river, in his opinion, must have been more than 800 leagues. As he passed down the river, he found it opened by two mouths into the Gulf of Mexico. From these circumstances, it appears probable, that this river, so early discovered, was the one which is now called the *Mississippi*.

1549.] This year Henry VII. granted a pension for life to Sebastian Cabot, in consideration of the important services he had rendered to the kingdom by his discoveries in America.

1562.] The admiral of France, Chatillon, early in this year, sent out a fleet under the command of John Ribalt. He arrived at Cape Francis on the coast of Florida, near which he discovered and entered a river, which he called May River. It is thought probable that this river was the same which is now called St. Mary's, which forms a part of the southern boundary of the United States. As he coasted north-

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ward, he discovered eight other rivers, one of which he called Port Royal, and sailed up it several leagues. On one of the rivers he built a fort, and called it *Charles*, in which he left a colony, under the direction of a captain Albert. The severity of Albert's measures, excited a mutiny, in which he was slain.

In 1564, Chatillon sent Rene Laudonier, with three ships, to Florida. In summer he arrived at the river May, on which he built a fort, and, in flattery of the king, Charles IX. he called it CAROLINA.

This year Ribalt arrived at Florida the second time, with a fleet of seven vessels, to recruit the colony, which, two years before, he had left under the direction of Albert.

In the autumn following, Pedro Melandes, with six Spanish ships, pursued Ribalt up the river on which he had settled, and, overpowering him in numbers, massacred him and his whole company. Melandes, having, in his way, taken possession of the country, built three forts, and left them garrisoned with 1200 soldiers. Laudonier and his colony, on May River, receiving information of the fate of Ribalt, took the alarm, and escaped to France.

1567.] A fleet of three ships was this year sent from France to Florida, under the command of Dominique de Gourges. The object of this expedition was, to dispossess the Spaniards of that part of Florida which they had cruelly and unjustifiably seized three years before. He arrived on the coast of Florida in 1568, and made a successful attack upon the forts. The recent cruelty of Melandes and his company excited revenge in the breast of Gourges, and roused the vindictive principle of retaliation. He took the forts; put most of the Spaniards to the sword; and, having burned and demolished all their fortresses, returned to France. During the fifty years next after this event, the French enterprised no settlements in America.

1576.] Frobisher was sent this year to find out a north-west passage to the East Indies. The first land which he made on the coast was a Cape, which, in flattery of the queen, he called *Queen Elizabeth's Foreland*. In coasting northerly, he discovered the straits which bear his name. He prosecuted his search for a passage into the Western Ocean, till he was prevented by the ice, and then returned to England.

1579.] In 1579, Humphrey Gilbert obtained a patent from Elizabeth, for lands not yet possessed by any Christian prince, provided he would take possession within six years. With this encouragement, he sailed for America, and, in 1583, anchored in Conception Bay. Afterward he discovered and took possession of St. John's harbour, and the country south. In pursuing his discoveries, he lost one of his ships on the shoals of Sablon, and, on his return home, a storm overtook him, in which he was lost, and the intended settlement was prevented.

1584.] This year two patents were granted by the queen, Elizabeth, one to Adrian Gilbert, the other to Walter Raleigh, for lands not possessed by any Christian prince. By the direction of Walter, two ships were fitted and sent out under the command of Philip Amidas and Arthur Barlow. In summer they arrived on the coast, anchored in a harbour seven leagues west of the Roanoke, took possession of the country in a formal manner, and, in flattery of the unmarried Elizabeth, called

called it *Virginia*. Till this time, the country was known by the general name of *Florida*. After this VIRGINIA became the common name for all north America.

1585.] The next year, Walter Raleigh sent Richard Grenville to America, with seven ships. He arrived at Wococon Harbour in summer. Having stationed a colony of more than a hundred people at Roanoke, under the direction of Ralph Lane, he coasted north-easterly as far as Chesapeak Bay, and returned to England.

The colony under Lane endured extreme hardships, and, it is thought, must have perished, had not Francis Drake returned to Virginia, and carried them to England, after having made several conquests for the queen in the West Indies, and other places.

A fortnight after, Richard Grenville arrived with new recruits; and, although he did not find the colony which he had before left, and knew not but they had perished, he had the rashness to leave 50 men at the same place.

1587.] The year following, Raleigh sent another company to Virginia, under a governor White, with a charter, and twelve assistants. In summer he arrived at Roanoke. Not one of the second company remained. He determined, however, to risk a third colony. Accordingly he left 115 people at the old settlement, and returned to England.

1590.] In the year 1590, White came over to Virginia with supplies and recruits for his colony: but, to his great grief, not a man was to be found. They had all perished with hunger, or been killed by the Indians.

1602.] In the spring of this year, Bartholomew Gosnold, with 32 persons, made a voyage to North Virginia, and discovered and gave names to Cape Cod, Martha's Vineyard, and Elizabeth Island, and to Dover Cliff. Elizabeth Island was the place which they fixed for their first settlement. But the courage of those who were to have tarried failing, they all went on board, and returned to England. All the attempts to settle this continent, which were made by the Dutch, French, and English, from it's discovery till this time, a period of 110 years, proved ineffectual: the Spaniards only, of all the European nations, had been successful. There is no account of there having been one European family, at this time, in all the vast extent of coast from Florida to Greenland.

1603.] Martin Pring and William Brown were this year sent by Walter Raleigh, with two small vessels, to make discoveries in North Virginia. They came upon the coast, which was broken with a multitude of islands, in latitude 43 degrees 30 minutes north. They coasted northward to Cape Cod Bay; thence round the Cape into a commodious harbour in latitude 41 degrees 25 minutes, where they went ashore, and tarried seven weeks, during which time they loaded one of their vessels with sassafras, and returned to England.

Bartholomew Gilbert, in a voyage to South Virginia, in search of the third colony, which had been left there by the governor, White, in 1587, having touched at several of the West India Islands, landed near Chesapeak Bay, where, in a skirmish with the Indians, he and

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four of his men were slain. The rest, without any further search for the colony, returned to England.

The French, being at this time in a state of tranquillity, in consequence of the edict of Nantz in favour of the Protestants, passed by Henry IV. in 1598, and of the peace with Philip, King of Spain and Portugal, were induced to pursue their discoveries in America. Accordingly the king signed a patent in favour of De Mons, in 1603, of all the country from the 40th to the 46th degree of north latitude, under the name of *Acadia*. The next year, 1604, De Mons ranged the coast from St. Lawrence to Cape Sable, and so round to Cape Cod.

1605.] In spring 1605, George Island and Pentecost Harbour were discovered by George Weymouth, who took with him to England five of the natives.

1606.] In the spring of this year, James I. by patent, divided Virginia into two colonies. The *southern* included all lands between the 34th and 41st degrees of north latitude. This was styled the *first colony*, under the name of South Virginia, and was granted to the London Company. The *northern*, called the *second colony*, and known by the general name of North Virginia, included all lands between the 38th and 45th degrees of north latitude, and was granted to the Plymouth company. Each of these colonies had a council of thirteen men to govern them. To prevent disputes about territory, the colonies were prohibited to plant within an hundred miles of each other. There appears to be an inconsistency in these grants, as the lands lying between the 38th and 41st degrees, are covered by both patents.

Both the London and Plymouth companies enterprised settlements within the limits of their respective grants. With what success will now be mentioned.

Piercy, brother of the Earl of Northumberland, in the service of the London company, went over with a colony to Virginia, and discovered Powhatan, now James River. In the mean time the Plymouth company sent Henry Challons, in a vessel of fifty-five tons, to plant a colony in North Virginia; but, in his voyage, he was taken by a Spanish fleet, and carried to Spain.

1607.] The London company this spring sent Christopher Newport with three vessels to South Virginia. He entered Chesapeak Bay, and landed, and, soon after, gave to the most southern point the name of *Cape Henry*, which it still retains. Having elected Edward Wingfield president for the year, they next day landed all their men, and began a settlement on James River, at a place which they called James-Town. This is the first town that was settled by the English in North America. Newport then sailed for England, leaving with the president one hundred and four persons, and soon after this died Bartholomew Gosnold, the first projector of this settlement, and one of the council. The following winter James-Town was burnt.

During this time the Plymouth company fitted out two ships under the command of Rawley Gilbert. They sailed for North Virginia, with one hundred planters, and George Popham for their president. They arrived in summer, and settled about nine or ten leagues to the southward

southward of the mouth of Sagadahok river. A great part of the colony, however, disheartened by the severity of the winter, returned to England, leaving their president, Popham, with only forty-five men.

It was in the fall of this year that the Puritans, who afterwards settled at Plymouth in New England, removed from the north of England to Holland, to avoid the cruelties of persecution.

This year, also, a small company of merchants at Dieppe and St. Malo's, founded Quebec, or rather the colony which they sent, built a few huts there, which did not take the form of a town until the reign of Louis XIV.

1608.] The Sagadahok colony suffered great hardships after the departure of their friends in December. In the depth of winter, which was extremely cold, their store-house caught fire, and was consumed, with most of their provisions and lodgings. Soon after this, their president died, and Rawley Gilbert was appointed to succeed him.

The Chief Justice, Popham, made every exertion to keep this colony alive, by repeatedly sending them supplies. But the circumstance of his death, which happened this year, together with that of the president Gilbert's being called to England, to settle his affairs, broke up the colony, and they all returned with him to England.

The unfavourable reports, which these unsuccessful adventurers propagated respecting the country, prevented any further attempts to settle North Virginia for several years after.

1609.] The London company last year sent two ships, and one hundred and twenty persons to James-Town: and this year, John Smith, afterwards president, arrived on the coast of South Virginia, and by sailing up a number of the rivers, discovered the interior country. Christopher Newport also arrived with seventy persons, which increased the colony to two hundred.

The Puritans, who had settled at Amsterdam, removed this year to Leyden, where they remained more than eleven years, till a part of them came over to New England.

The council for South Virginia having resigned their old commission, requested and obtained a new one; in consequence of which they appointed Thomas West, De la War, general of the colony; Thomas Gates, his lieutenant; George Somers, admiral; Thomas Dale, high marshal; Ferdinand Wainman, general of the horse; and Newport, vice admiral.

Gates, Newport, and Somers, with seven ships and a ketch and pinnace, having five hundred people on board, men, women, and children, sailed from Falmouth for South Virginia. In crossing the Bahama Gulf, the fleet was overtaken by a violent storm, and separated. Somers ran his ship ashore on one of the Bermudas Islands, which, from this circumstance, have been called the Somer Islands. The people on board, one hundred and fifty in number, all got safe on shore, and there remained until the following spring. The remainder of the fleet arrived at Virginia in summer. The colony was now increased to five hundred men, John Smith, then president, a little before the arrival of the fleet, had been very badly burnt, by means of some powder which had accidentally caught fire. This circumstance,

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together with the opposition he met with from those who had lately arrived, induced him to leave the colony and return to England, which he accordingly did in the autumn. Francis West, his successor in office, soon followed him, and George Piercy was elected president.

1610.] The year following, the South Virginia, or London company, sealed a patent to De la War, constituting him governor and captain general of South Virginia. He soon after embarked for America, with one hundred and fifty men, in three ships.

The people, who, the year before, had been shipwrecked on the Bermudas Islands, had employed themselves during the winter, under the direction of Thomas Gates, George Somers, and Christopher Newport, in building a sloop to transport themselves to the continent. They embarked for Virginia in spring, with about one hundred and fifty persons on board, and landed at James-Town, leaving two of their men behind, who chose to stay. Finding the colony, which at the time of John Smith's departure, consisted of five hundred, now reduced to sixty, and those few in a distressed and wretched situation, they with one voice resolved to return to England; and for this purpose, the whole colony repaired on board their vessels, broke up the settlement, and sailed down the river on their way to their native country.

De la War, who had embarked for James-Town, met them the day after they had sailed, and persuaded them to return with him. The government of the colony devolved upon De la War. And from this time we may date the effectual settlement of Virginia.

In 1613, John Rolfe was married to Pocahontas, the daughter of Powhatan, the famous Indian chief. This connection, which was very agreeable, both to the English and Indians, was the foundation of a friendly and advantageous commerce between them.

As early as the year 1608, or 1609, Henry Hudson, an Englishman, under a commission from the king his master, discovered Long Island, New-York, and the river which still bears his name, and afterwards sold the country, or rather his assumed right, to the Dutch. Their writers contend, that Hudson was sent out by the East India company, in 1609, to discover a north-west passage to China; and that having first discovered Delaware Bay, he came and penetrated Hudson's river as far as latitude forty-three degrees. It is said, however, that there was a sale, and that the English objected to it, though for some time they neglected to oppose the Dutch settlement of the country.

1610.] In 1610, Hudson sailed again to this country, then called by the Dutch New Netherlands. Four years after, the States-General granted a patent to sundry merchants for an exclusive trade on the North river, who, the same year, 1614, built a fort on the west side, near Albany. From this time we may date the settlement of New-York.

Conception Bay, on the island of Newfoundland, was settled in the year 1610, by about forty planters, under John Guy, to whom James I. had given a patent of incorporation.

Champlain, a Frenchman, had begun a settlement at Quebec, 1608.

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St. Croix, Mount Mansel, and Port Royal, were settled about the same time. These settlements remained undisturbed till 1613, when the Virginians, hearing that the French had settled within their limits, sent troops to dislodge them. For this purpose they sailed to Sagadahok, took their forts at Mount Mansel, St. Croix, and Port Royal, with their vessels, ordnance, cattle, and provisions, and carried them to James-Town in Virginia. Quebec was left in possession of the French.

1614.] This year John Smith, with two ships, and forty-five men and boys, made a voyage to North Virginia, to make experiments upon a gold and copper mine. His orders were, to fish and trade with the natives, if he should fail in his expectations with regard to the mine. To facilitate this business, he took with him Tantum, an Indian, perhaps the one that Weymouth carried to England in 1605. In spring he reached the island of Monahigan, in latitude forty-three degrees thirty minutes. Here Smith was directed to stay and keep possession, with ten men, for the purpose of making a trial of the whaling business, but being disappointed in this, he built seven boats, in which thirty-seven men made a very successful fishing voyage. He then set out with eight men only, in a small boat, coasted from Penobscot to Sagadahok, Acocisco, Passataquack, Tragabizanda, now called Cape Ann, thence to Acomack, where he skirmished with some Indians; thence to Cape Cod, where he set his Indian, Tantum, ashore, and left him, and returned to Monahigan. In this voyage he found two French ships in the Bay of Massachusetts; they had come there six weeks before, and, during that time, had been trading very advantageously with the Indians. It was conjectured that there were, at this time, three thousand Indians upon the Massachusetts Islands.

In summer, Smith embarked for England in one of the vessels, leaving the other under the command of Thomas Hunt, to equip for a voyage to Spain. After Smith's departure, Hunt perfidiously allured twenty Indians (one of whom was Squanto, afterwards so serviceable to the English) to come on board his ship at Patuxit, and seven more at Naufit, and carried them to the island of Malaga, where he sold them for twenty pounds each, to be slaves for life. This conduct excited in the breasts of the Indians such an inveterate hatred of the English, that, for many years after, all commercial intercourse with them was rendered exceedingly dangerous.

When Smith arrived at London, he drew a map of the country, and called it New England. From this time North Virginia assumed the name of New England, and the name Virginia was confined to the southern colony.

Between the years 1614 and 1620, several attempts were made by the Plymouth company to settle New-England, but by various means they were all rendered ineffectual. During this time, however, an advantageous trade was carried on with the natives.

1617.] In the year 1617, the Puritans at Leyden meditated a removal to America. Various difficulties intervened to prevent the success of their designs, until the year 1620, when a part of the congregation

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The next year after the settlement of Plymouth, John Mason obtained of the Plymouth council, a grant of the present state of New-Hampshire. Two years after, under the authority of this grant, a small colony settled near the mouth of Piscataqua river. From this period we may date the settlement of New-Hampshire.

1627.] In 1627, a colony of Swedes and Fins came over, and landed at Cape Henlopen: and afterwards purchased of the Indians the land from Cape Henlopen to the Falls of Delaware, on both sides of the river, which they called New-Swedeland Stream. On this river they built several forts, and made settlements.

1628.] In 1628, the council for New-England sold to Henry Roswell, and five others, a large tract of land, lying round Massachusetts Bay, and John Endicott, with his wife and family, came over and settled at Naumkeag, now called Salem. This was the first English settlement which was made in Massachusetts Bay. Plymouth, indeed, which is now included in the Commonwealth of Massachusetts, was settled eight years before, but at this time it was a separate colony, under a distinct government, and continued so until the second charter of Massachusetts was granted by William and Mary, in 1691, by which Plymouth, the Province of Main and Sagadahok were annexed to Massachusetts.

1633.] In the reign of Charles I. the Lord Baltimore, a Romanist, applied for, and obtained, a grant of a tract of land upon Chesapeake Bay, about one hundred and forty miles long, and one hundred and thirty broad. Soon after this, in consequence of the rigour of the laws of England against the Papists, Baltimore, with a number of his persecuted brethren, came over and settled it, and in flattery of Queen Henrietta Maria, they called it Maryland. This colony had the honour of giving the first example of religious toleration in America.

The first grant of Connecticut was made by Robert, Earl of Warwick, president of the council of Plymouth, to the Lord Say and Seal, Lord Brook and others, in the year 1631. In consequence of several smaller grants made afterwards by the patentees to particular persons, Fenwick made a settlement at the mouth of Connecticut river, and called it Saybrook. Four years after, a number of people from Massachusetts Bay came and began settlements at Hartford, Wethersfield, and Windsor on Connecticut river. Thus commenced the English settlement of Connecticut.

Rhode Island was first settled in consequence of religious persecution. Roger Williams, who was among those who early came over to Massachusetts, not agreeing with some of his brethren in sentiment, was banished the colony, and went with twelve others, his adherents, and settled at Providence in 1635. From this beginning arose the colony, now state of Rhode Island.

1664.] In 1664, Charles II. granted to the Duke of York, what is now called New-Jersey, then a part of a large tract of country by the name of New-Netherlands. Some parts of New-Jersey were settled by the Dutch as early as about 1615.

1662.] In the year 1662, Charles II. granted to Edward, Earl of Clarendon, and seven others, almost the whole territory of the three Southern States, North and South Carolinas and Georgia. Two years after he granted a second charter, enlarging their boundaries. The proprietors, by virtue of authority vested in them by their charter, engaged John Locke to frame a system of Laws for the government of their intended colony. Notwithstanding these preparations, no effectual settlement was made until the year 1669, (though one was attempted in 1667) when William Sayle came over with a colony, and fixed on a neck of land between Ashly and Cooper Rivers. Thus commenced the settlement of Carolina, which then included the whole territory between the 29th and 36th $\frac{1}{2}$ degrees, north latitude, together with the Bahama Islands, lying between latitude 22 and 87 deg. north.

1681.] The royal charter for Pennsylvania was granted to William Penn, 1681. The first colony came over the next year, and settled under the proprietor, who acted as governor.

The proprietary government in Carolina was attended with so many inconveniences, and occasioned such violent dissensions among the settlers, that the parliament in Great Britain was induced to take the province under their immediate care. The proprietors (except the Lord Granville) accepted of £22,500 sterling, from the crown for the property and jurisdiction. This agreement was ratified by act of parliament in 1729. A clause in this act reserved to Granville his eighth share of the property and arrears of quit-rents, which continued vested in his family till the revolution in 1776. His share made a part of the present state of North Carolina. About the year 1729, the extensive territory belonging to the proprietors, was divided into North and South Carolina. They remained separate royal governments until they became independent states.

For the relief of poor indigent people of Great-Britain and Ireland, and for the security of Carolina, a project was formed for planting a colony between the rivers Savannah and Alatomaha. Accordingly, application being made to George II. he issued letters patent, bearing date June 9th, 1732, for legally carrying into execution the plan. In flattery of the king, who greatly encouraged the plan, they called the new province Georgia. Twenty-one trustees were appointed to conduct the affairs relating to the settlement of the province. The November following, one hundred and fifteen persons, one of whom was James Oglethorpe, embarked for Georgia, where they arrived, and landed at Yamacraw. In exploring the country, they found an elevated pleasant spot of ground on the bank of a navigable river, upon which they marked out a town, and from the Indian name of the river which passed by it, called it Savannah. From this period, we may date the settlement of Georgia.

Kentucky was first discovered by James Macbride, and some others who were in company with him, in the year 1754. Daniel Boon explored it in 1769.

Four years after Boon and his family, with five other families, who were joined by forty men from Powle's valley, began the settle-

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ment of Kentucky, which is now one of the most growing colonies, perhaps, in the world.

The tract of country, called Vermont, before the late war, was claimed both by New-York and New-Hampshire. When hostilities commenced between Great Britain and the Colonies, the inhabitants considering themselves as in a state of nature, and not within any legal jurisdiction, associated and formed for themselves a constitution of civil government. Since that time, 1777, Vermont has, to all intents and purposes, been a sovereign and independent state.

The extensive tract of country, lying northwest of the Ohio River, within the limits of the United States, was erected into a separate temporary government, by an ordinance of Congress, passed in 1787.

This is a summary view of the first discoveries and progressive settlement of North America, in their chronological order.—The following recapitulation will comprehend the whole in one view.

<i>Names of Places.</i>	<i>When settled.</i>	<i>By whom.</i>
Quebec,	1608	By the French.
Virginia,		By De la War.
Newfoundland,	1610	By John Guy.
New-York, }	about 1616	By the Dutch.
New-Jersey, }		
Plymouth	1620	By the Puritans.
New-Hampshire,	1623	{ By a small English colony near the mouth of Piscataqua river.
Delaware, }	1627	By the Swedes and Fins.
Pennsylvania, }		
Massachusetts Bay,	1628	By John Endicot and company,
Maryland,	1633	{ By Baltimore, with a colony of Roman Catholics.
Connecticut,	1635	{ By Fenwick, at Saybrook, near the mouth of Connecticut river.
Rhode-Island,	1635	{ By Roger Williams, and his persecuted brethren.
New-Jersey,	1664	{ Granted to the Duke of York by Charles II. and made a distinct government, and settled some time before this by the English.
South-Carolina,	1669	By William Sayle.
Pennsylvania,	1682	{ By William Penn, with a colony of Quakers.
North-Carolina,	about 1728	{ Erected into a separate government, settled before by the English.
Georgia,	1732	By James Oglethorpe.
Kentucky,	1773	By Daniel Boon.
Vermont,	1777	{ By emigrants from Connecticut, and other parts of New-England.

Territory, N. W. }
of Ohio river. }

1787

By the Ohio and other companies.

The above dates are from the periods, when the first permanent settlements were made.

436. *American Revolution.*] Before the revolution, there were three kinds of government established in the British American Colonies. The first was a charter government, by which the powers of legislation were vested in a governor, council, and assembly, chosen by the people. Of this kind were the governments of Connecticut and Rhode-Island. The second was a proprietary government, in which the proprietor of the province was governor; although he generally resided abroad, and administered the government by a deputy of his own appointment; the assembly only being chosen by the people. Such were the governments of Pennsylvania and Maryland; and originally of New-Jersey and Carolina. The third kind was that of royal government, where the governor and council were appointed by the crown, and the assembly by the people. Of this kind were the governments of New-Hampshire, Massachusetts, New-York, New-Jersey, after the year 1702; Virginia, the Carolinas, after the resignation of the proprietors in 1728; and Georgia. This variety of governments created different degrees of dependence on the crown. To render laws valid, it was constitutionally required that they should be ratified by the king; but this formality was often dispensed with, especially in the charter governments. But, it is obvious, that the British constitution could permit no such settlement to be formed, even by the authority of the crown, otherwise than in a dependence upon the paramount authority of the parliament.

At the beginning of the last war of George II. with France, commissioners from many of the colonies had assembled at Albany, and proposed that a great council should be formed by deputies from the several colonies, which, with a general governor to be appointed by the crown, should be empowered to take measures for the common safety, and to raise money for the execution of their designs. This proposal was not relished by the British ministry; but in place of this plan, it was proposed, that the governors of the colonies, with the assistance of one or two of their council, should assemble and concert measures for the general defence, erect forts, levy troops, and draw on the treasury of England for monies that should be wanted; but the treasury to be reimbursed by a tax on the colonies, to be laid by the English parliament. To this plan, which would imply an avowal of the right of parliament to tax the colonies, the provincial assemblies objected with unshaken firmness, and the war was carried on by requisitions on the colonies for supplies of men and money, or by voluntary contributions.

But no sooner was peace concluded, than the English parliament resumed the plan of taxing the colonies; and to justify their attempts, said, that the money to be raised, was to be appropriated to defray the expence of defending them in the late war.

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The first attempt to raise a revenue in America appeared in the memorable stamp act, passed in 1765; by which it was enacted, that certain instruments of writing, as bills, bonds, &c. should not be valid in law, unless drawn on stamped paper, on which a duty was laid. No sooner was this act published in America than it raised a general alarm. The people were filled with apprehensions at an act, which they supposed an attack on their constitutional rights. The colonies petitioned the king and parliament for a redress of the grievance, and formed associations for the purpose of preventing the importation and use of British manufactures, until the act should be repealed. The news of the repeal was received in the colonies with universal joy, and the trade between them and Great Britain was renewed on the most liberal footing.

The parliament, by repealing this obnoxious act, did not intend to lay aside the scheme of raising a revenue in the colonies, but merely to change the mode. Accordingly, the next year, they passed an act, laying a certain duty on glass, tea, paper, and painters' colours; articles which were much wanted, and not manufactured, in America. This act kindled the resentment of the Americans, and excited a general opposition to the measure; so that parliament thought proper, in 1770, to take off these duties, except three-pence a pound on tea. Yet this duty, however trifling, kept alive the jealousy of the colonists, and their opposition to parliamentary taxation continued and increased. The inconvenience of paying the duty was not the sole nor principal cause of the opposition; it was the principle, which, once admitted, would have subjected the colonies to unlimited parliamentary taxation, without the privilege of being represented. The right, abstractly considered, was denied; and the smallest attempt to establish the claim, by precedent, was uniformly resisted. The Americans could not be deceived, as to the views of parliament; for the repeal of the stamp-act was accompanied with an unequivocal declaration, "that the parliament had a right to make laws of sufficient validity to bind the colonies in all cases whatsoever."

The colonies therefore entered into measures to encourage their own manufactures and home productions, and to retrench the use of foreign superfluities; while the importation of tea was prohibited. In the royal and proprietary governments, the governors and people were in a state of continual warfare. Assemblies were repeatedly called, and suddenly dissolved. While sitting, the assemblies employed the time in stating grievances and framing remonstrances. To inflame these discontents, an act of parliament was passed, ordaining that the governors and judges should receive their salaries of the crown; thus making them independent of the provincial assemblies, and removable only at the pleasure of the king.

About this time the discovery and publication of some private confidential letters, written by the royal officers in Boston, to persons in office in England, served to confirm the apprehensions of the Americans, with respect to the designs of the British government. It was now made obvious, that more effectual measures would be taken to establish the supremacy of the British parliament over the colonies. The

letters recommended decisive measures, and the writers were charged, by the exasperated Americans, with betraying their trust, and the people they governed.

As the resolutions of the colonies, not to import or consume tea, had, in a great measure deprived the English government of a revenue from this quarter, the parliament formed a scheme of introducing tea into America, under cover of the East India Company. For this purpose, an act was passed, enabling the Company to export all sorts of teas, duty free, to any place whatever. The Company departed from their usual mode of business, and became their own exporters. Several ships were freighted with teas, and sent to the American colonies, and factors were appointed to receive and dispose of their cargoes.

The Americans, determined to oppose the revenue system of the English parliament in every possible shape, considered the attempt of the East-India Company to evade the resolutions of the colonies, and dispose of teas in America, as an indirect mode of taxation, sanctioned by the authority of parliament. The people assembled in various places, and in the large commercial towns took measures to prevent the landing of the teas. Committees were appointed, and furnished with extensive powers to inspect merchants' books, to propose tests, and make use of other expedients to frustrate the designs of the East-India Company. The same spirit pervaded the people from New-Hampshire to Georgia. In some places, the consignees of the teas were intimidated so far as to relinquish their appointments, or to enter into engagements not to act in that capacity. The cargo sent to South Carolina was stored, the consignees being restrained from offering the tea for sale. In other provinces, the ships were sent back without discharging their cargoes.

But in Boston the tea was actually destroyed. Sensible that no legal measures could prevent it's being landed, and that if once landed, it would be disposed of; a number of men in disguise, in the latter end of 1773, entered the ships, and threw overboard three hundred and forty chests of it, which was the proportion belonging to the East-India Company. No sooner did the news of this destruction of the tea reach Great-Britain, than the parliament determined to punish the people of that town. On the king's laying the American papers before them, a bill was brought in, and passed, "to discontinue the landing and discharging, lading and shipping of goods, wares, and merchandizes at the town of Boston, or within the harbour."

This act, called the Boston Port Bill, threw the inhabitants of Massachusetts into the greatest consternation. The town of Boston passed a resolution, expressing their sense of this oppressive measure, and a desire that all the colonies would concur to stop all importation from Great Britain. Most of the colonies entered into spirited resolutions, on this occasion, to unite with Massachusetts in a firm opposition to the measures of the parliament; and the day on which the Port Bill was to take place, was appointed to be kept as a day of humiliation, fasting, and prayer throughout the colonies, to seek the divine direction and aid, in that critical and gloomy juncture of affairs.

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During the height of the consternation and confusion which the Boston Port Bill occasioned, at the very time when a town-meeting was sitting to consider it, General Gage, who had been appointed to the government of Massachusetts, arrived in the harbour. His arrival, however, did not allay the popular ferment, or check the progress of the measures then taking, to unite the colonies in opposition to the oppressive act of parliament.

But the Port Bill was not the only act that alarmed the apprehensions of the Americans. Determined to compel the province of Massachusetts to submit to their laws, parliament passed an act "for the better regulating of government in the province of Massachusetts Bay." The object of this act was to alter the government, as it stood on the charter of King William, to take the appointment of the executive out of the hands of the people, and place it in the crown; thus making even the judges and sheriffs dependent on the king, and removeable only at his pleasure.

This act was soon followed by another, which ordained, that any person, indicted for murder, or other capital offence, committed in aiding the magistrates in executing the laws, might be sent by the governor, either to another colony, or to Great Britain, for his trial.

This was soon followed by the Quebec Bill; which extended the bounds of that province, and granted many privileges to the Roman Catholics. The object of this bill was thought to be, to secure the attachment of that province to the crown of England, and prevent it's joining the colonies in their resistance of the laws of parliament.

But these measures did not intimidate the Americans. On the other hand, they served to confirm their former apprehensions of the evil designs of government, and to unite the colonies in their opposition. A correspondence of opinion, with respect to the unconstitutional acts of parliament, produced a uniformity of proceedings in the colonies. The people generally concurred in a proposition for holding a congress by deputation from the several colonies, in order to concert measures for the preservation of their rights. Deputies were accordingly appointed, and met at Philadelphia, in the autumn of 1774.

In this first congress, the proceedings were cool, deliberate, and loyal; but marked with unanimity and firmness. Their first act was a declaration, or state of their claims as to the enjoyment of all the rights of British subjects, and particularly that of taxing themselves exclusively, and of regulating the internal police of the colonies. They also drew up a petition to the king, complaining of their grievances, and praying for a repeal of the unconstitutional and oppressive acts of parliament. They signed an association, to suspend the importation of British goods, and the exportation of American produce, until their grievances should be redressed. They sent an address to the inhabitants of Great Britain, and another to the people of America; in the former of which they enumerated the oppressive steps of parliament, and called on their British brethren not to aid the ministry in enslaving their American subjects; and in the latter, they endeavoured to confirm

the people in a spirited and unanimous determination to defend their constitutional rights.

In the mean time, every thing in Massachusetts wore the appearance of opposition by force. A new council for the governor had been appointed by the crown. New judges were appointed, and attempted to proceed in the execution of their office. But the juries refused to be sworn under them; in some counties, the people assembled to prevent the courts from proceeding to business; and in Berkshire they succeeded.

In this situation of affairs, the day for the annual muster of the militia approached. General Gage, apprehensive of some violence, had the precaution to seize the magazines of ammunition and stores at Cambridge and Charleston, and lodged them in Boston. This measure, with the fortifying of that neck of land which joins Boston to the main land at Roxbury, caused an universal alarm and ferment. Several thousand people assembled, and it was with difficulty they could be restrained from falling upon the British troops.

On this occasion, an assembly of delegates from all the towns in Suffolk county was called; and several spirited resolutions were agreed to. These resolutions were prefaced with a declaration of allegiance, but they declared that the late acts of parliament, and the proceedings of General Gage, were glaring infractions of their rights and liberties, which their duty called them to defend by all lawful means.

This assembly remonstrated against the fortification of Boston Neck, and against the Quebec Bill: and resolved upon a suspension of commerce, an encouragement of arts and manufactures, the holding of a provincial congress, and a submission to the measures which should be recommended by the continental congress. They recommended that the collectors of taxes should not pay any money into the treasury, without further orders; they also recommended peace and good order, as they meant to act merely upon the defensive.

In answer to their remonstrance, Gage assured them that he had no intention to prevent the free egress and regress of the inhabitants to and from the town of Boston, and that he would not suffer any person under his command to injure the person or property of any of his majesty's subjects.

Previous to this, a general assembly had been summoned to meet; and notwithstanding the writs had been countermanded by the governor's proclamation, on account of the violence of the times and the resignation of several of the new counsellors, yet representatives were chosen by the people who met at Salem, resolved themselves into a provincial congress, and adjourned to Concord.

The congress addressed the governor with a rehearsal of their distresses, and took the necessary steps for defending their rights. They regulated the militia, made provision for supplying the treasury, and furnishing the people with arms; and such was the enthusiasm and union of the people, that the recommendations of the provincial congress had the force of laws.

Gage was incensed at these measures—he declared, in his answer to the address, that Britain could never harbour the black design
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of enslaving her subjects, and published a proclamation, in which he insinuated, that such proceedings amounted to rebellion. He also ordered barracks to be erected for the soldiers; but he found difficulty in procuring labourers, either in Boston or New-York.

In the beginning of 1775, the fishery bills were passed in parliament, by which the colonies were prohibited to trade with Great Britain, Ireland, or the West-Indies, or to take fish on the Banks of Newfoundland.

In the distresses to which these acts of parliament reduced the town of Boston, the unanimity of the colonies was remarkable in the large supplies of provision, furnished by the inhabitants of different towns, from New-Hampshire to Georgia, and shipped to the relief of the sufferers.

Preparations began to be made, to oppose, by force, the execution of these acts of parliament. The militia of the country were trained to the use of arms—great encouragement was given for the manufacture of gunpowder, and measures were taken to obtain all kinds of military stores.

In the spring of 1775 hostilities actually commenced; and in the same year the following proclamation and reply were issued.

L O N D O N.

By the King, a Proclamation, for suppressing Rebellion and Sedition.

GEORGE R.

“ WHEREAS many of our subjects, in divers parts of our colonies and plantations in North America, misled by dangerous and ill-designing men, and forgetting the allegiance which they owe to the power that has protected and sustained them, after various disorderly acts committed in disturbance of the public peace, to the obstruction of lawful commerce, and to the oppression of our loyal subjects carrying on the same, have at length proceeded to open and avowed rebellion, by arraying themselves in a hostile manner, to withstand the execution of the law, and traitorously preparing, ordering, and levying war against us: and whereas there is reason to apprehend such rebellion hath been much promoted and encouraged by the traitorous correspondence, counsel, and comfort of divers wicked and desperate persons within this realm: To the end therefore that none of our subjects may neglect or violate their duty through any doubt or protection which the law will afford to their loyalty and zeal; we have thought fit, by and with all advice of our privy council, to issue our Royal Proclamation, hereby declaring, that not only all our officers civil and military, are obliged to exert their utmost endeavours to suppress such rebellion, and to bring the traitors to justice; but that all our subjects of this realm and the dominions thereunto belonging, are bound by law to be aiding and assisting in the suppression of such rebellion, and to disclose and make known all traitorous conspiracies and attempts against our crown and dignity: and we do accordingly strictly charge and command all officers, as well civil as military, and all other our obedient and loyal subjects, to use their utmost endeavours to withstand and suppress such rebellion,

bellion, and to disclose and make known all treasons and traitorous conspiracies which they shall know to be against us, our crown and dignity; and for that purpose, that they transmit to one of our principal secretaries of state, or other proper officer, due and full information of all persons who shall be found carrying on correspondence with, or in any manner aiding or abetting the persons, now in open arms and rebellion against our government within any of our colonies and plantations in North-America, in order to bring to condign punishment the authors, perpetrators, and abettors of such traitorous designs.

“ Given at our Court at St. James’s, the twenty-third day of August, one thousand seven hundred and seventy-five, in the fifteenth year of our reign.”

GOD save the KING.

A M E R I C A.

Philadelphia. In Congress, December 6th, 1775.

“ WE, the Delegates of the Thirteen United Colonies in North America have taken into our most serious consideration a Proclamation issued from the Court of St. James’s on the 23d day of August last. The name of Majesty is used to give it a sanction and influence; and, on that account, it becomes a matter of importance to wipe off, in the name of the people of these United Colonies, the aspersions, which it is calculated to throw upon our cause; and to prevent, as far as possible, the undeserved punishments, which it is designed to prepare for our friends.

“ We are accused of forgetting the allegiance which we owe to the “ power that has protected and sustained us.” Why all this ambiguity and obscurity in what ought to be so plain and obvious, as that he who runs may read it? What allegiance is that we forget? Allegiance to Parliament? We never owed—we never owned it.—Allegiance to our King? Our words have ever avowed it—our conduct has ever been consistent with it. We condemn, and, with arms in our hands—a resource which freemen will never part with—we oppose the claim and exercise of unconstitutional powers, to which neither the crown nor parliament were never entitled. By the British Constitution, our best inheritance, rights, as well as duties, descend upon us: We cannot violate the latter by defending the former: We should act in diametrical opposition to both, if we permitted the claims of the British Parliament to be established, and the measures pursued in consequence of those claims to be carried into execution among us. Our sagacious ancestors provided mounds against the inundation of tyranny and lawless power on one side, as well as against that of faction and licentiousness on the other. On which side has the breach been made? Is it objected against us by the most inveterate and the most uncandid of our enemies, that we have opposed any of the just prerogatives of the crown, or any legal exertion of those prerogatives? Why, then, are we accused of forgetting our allegiance?—We have performed our

duty; we have resisted in those cases in which the right to resist is stipulated as expressly on our part, as the right to govern is, in other cases, stipulated on the part of the crown. The breach of allegiance is removed from our resistance as far as tyranny is removed from legal government. It is alleged that "we have proceeded to an open and avowed rebellion." In what does this rebellion consist? It is thus described.—"Arraying ourselves in hostile manner, to withstand the execution of the law, and traitorously preparing, ordering and levying war against the King." We know of no laws binding upon us, but such as have been transmitted to us by our ancestors, and such as have been consented to by ourselves or our representatives elected for that purpose. What laws, stamped with these characters, have we withstood? We have indeed defended them; and we will risk every thing, do every thing, and suffer every thing in their defence. To support our laws, and our liberties established by our laws, we have prepared, ordered, and levied war: But is this traitorously, or against the king? We view him as the constitution represents him: That tells us he can do no wrong. The cruel and illegal attacks which we oppose, have no foundation in the royal authority. We will not, on our part, lose the distinction between the King and his ministers: happy it would have been for some former princes had it been always preserved on the part of the crown!

"Besides all this, we observe, on this part of the proclamation, that 'rebellion' is a term undefined and unknown in the law. It might have been expected, that a proclamation, which, by the British constitution, has no other operation than merely that of enforcing what is already law, would have a known legal basis to have rested upon. A correspondence between the inhabitants of Great Britain and their brethren in America produced better times, much satisfaction to individuals, and much advantage to the public. By what criterion shall one, who is unwilling to break off this correspondence, and is, at the same time, anxious not to expose himself to the dreadful consequences, threatened in this proclamation.—By what criterion shall he regulate his conduct? He is admonished not to carry on correspondence with the persons now in rebellion in the Colonies. How shall he ascertain who are in rebellion, and who are not? he consults the law, to learn the nature of the supposed crime: the law is silent upon the subject. This, in a country, where it has been often said, and formerly with justice, that the government is by law, and not by men, might render him perfectly easy. But proclamations have been sometimes dangerous engines in the hands of those in power. Information is commanded to be given to one of the Secretaries of State, of all persons "who shall be found carrying on correspondence with the persons in rebellion, in order to bring to condign punishment the authors, perpetrators, or abettors of such dangerous designs." Let us suppose, for a moment, that some persons in the colonies are in rebellion, and that those, who carry on correspondence with them, might learn, by some rule, which Britons are bound to know, how to discriminate them: Does it follow, that all correspondence with them deserves to be punished? It might have been intended to apprise them of their danger, and to reclaim

claim them from their crimes. By what law does a correspondence with a criminal transfer to communicate his guilt? We know that those who aid and adhere to the King's enemies, and those who correspond with them, to enable them to carry their designs into effect, are criminal in the eye of the law. But the law goes no farther. Can proclamations, according to the principles of reason and justice, and the constitution, go farther than the law?

"But, perhaps, the principles of reason and justice, and the constitution, will not prevail; experience suggests to us the doubt; if they should not, we must resort to arguments drawn from a very different source. We, therefore, in the name of the people of these United Colonies, and by authority, according to the purest maxims of representation derived from them, declare, that whatever punishment shall be inflicted upon any persons in the power of our enemies for favouring, aiding, or abetting the cause of American liberty, shall be retaliated in the same kind, and in the same degree upon those in our power, who have favoured, aided, or abetted, or shall favour, aid, or abet, the system of ministerial oppression. The essential difference between our cause, and that of our enemies, might justify a severer punishment: the law of retaliation will unquestionably warrant one equally severe.

"We mean not, however, by this declaration, to occasion or to multiply punishments: our sole view is to prevent them. In this unhappy and unnatural controversy, in which Britons fight against Britons, and the descendants of Britons, let the calamities immediately incident to civil war suffice. We hope additions will not, from wantonness, be made to them on one side; we shall regret the necessity, if laid under the necessity, of making them on the other.

(*Extract from the Minutes*)

"CHARLES THOMPSON, Sec."

A bill was also passed by the British parliament, intituled, "An act to prohibit all trade and intercourse with the colonies of New Hampshire, Massachusetts Bay, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, the Three Lower Counties on Delaware, Maryland, Virginia, North Carolina, South Carolina, and Georgia, during the continuance of the present rebellion, within the said colonies respectively;" in which it is, amongst other things enacted, "That all ships and vessels, of or belonging to the inhabitants of the said colonies, together with their cargoes, apparel, and furniture, except as in the said acts are excepted, and all other ships and vessels whatsoever, together with their cargoes, apparel, and furniture, which shall be found trading in any port or place, except as are therein also excepted, shall become forfeited to his Majesty, as if the same were the ships and effects of open enemies, and shall be so adjudged, deemed, and taken, in all courts of admiralty, and in all other courts whatsoever."

In 1776, Congress entered into the following resolutions, and issued to the world, the declaration of their Freedom and Independence.

In Congress, March 23, 1776.

"Whereas the petitions of these United Colonies to the king for the redress of great and manifest grievances, have not only been rejected, but treated with scorn and contempt; and the opposition to designs, evidently formed to reduce them to a state of servile subjection, and their necessary defence against hostile forces, actually employed to subdue them, declared rebellion: And whereas an unjust war hath been commenced against them, which the commanders of the British fleets and armies have prosecuted, and still continue to prosecute with their utmost vigour, and in a cruel manner, wasting, spoiling, and destroying the country, burning houses and defenceless towns, and exposing the helpless inhabitants to every misery from the inclemency of the winter, and not only urging savages to invade the country, but instigating negroes to murder their masters: And whereas the parliament of Great-Britain hath lately passed an act, affirming these colonies to be in open rebellion; forbidding all trade and commerce with the inhabitants thereof, until they shall accept pardons and submit to despotic rule: declaring their property, wherever found upon the water, liable to seizure and confiscation, and enacting, that what had been done there, by virtue of the royal authority, were just and lawful acts, and shall be so deemed: from all which it is manifest, that the iniquitous scheme concerted to deprive them of the liberty, they have a right to, by the laws of nature and the English constitution, will be pertinaciously pursued. It being, therefore, necessary to provide for their defence and security, and justifiable to make reprisals upon their enemies, and otherwise to annoy them, according to the laws and usages of nations; the Congress, trusting that such of their friends in Great-Britain (of whom it is confessed there are many entitled to applause and gratitude for their patriotism and benevolence, and in whose favour a discrimination of property cannot be made) as shall suffer by captures, will impute it to the authors of our common calamities, *Do declare and resolve*, as followeth, *to wit*.

"*Resolved*, That the inhabitants of these colonies be permitted to fit out armed vessels, to cruise on the enemies of these United Colonies.

"*Resolved*, That all ships and other vessels, their tackle, apparel, and furniture, and all goods, wares, and merchandizes belonging to any inhabitant or inhabitants of Great-Britain taken on the high seas, or between high and low water mark, by any armed vessel fitted out by any private person or persons, and to whom commissions shall be granted, and being libelled and prosecuted in any court erected for the trial of maritime affairs in any of these Colonies, shall be deemed and adjudged to be lawful prize, and after deducting and paying the wages, the seamen and mariners, on board of such captures as are merchant ships and vessels, shall be entitled to according to the terms of their contracts until the time of the adjudication, shall be condemned to and for the use of the owner or owners, and the officers, marines, and mariners of such armed vessel, according to such rules and proportions as they shall agree on. Provided always, that this resolution shall not extend or be construed to extend to any vessel bringing

ing settlers, arms, ammunition, or warlike stores, to and for the use of these colonies, or any of the inhabitants thereof who are friends to the American cause, or to such warlike stores or to the effects of such settlers.

“Resolved, That all ships or vessels, with their tackle, apparel, and furniture, goods, wares, and merchandizes, belonging to any inhabitant of Great-Britain, as aforesaid, which shall be taken by any of the vessels of war of these United Colonies, shall be deemed forfeited, one-third, after deducting and paying the wages of seamen and mariners, as aforesaid, to the officers and men on board; and two-thirds to the use of the United Colonies.

“Resolved, That all ships or vessels, with their tackle, apparel, furniture, goods, wares, and merchandizes, belonging to any inhabitant of Great-Britain, as aforesaid, which shall be taken by any vessel of war fitted out by, and at the expence of any of the United Colonies, shall be deemed forfeited, and divided, after deducting and paying the wages of seamen and mariners, as aforesaid, in such manner and proportions as the assembly or convention of such colony shall direct.

“Resolved, That all vessels, their tackle, apparel, and furniture, and cargoes belonging to inhabitants of Great Britain as aforesaid, and all vessels which may be employed in carrying supplies to the ministerial armies, which shall happen to be taken near the shores of any of these colonies, by the people of the country, or detachments from the army, shall be deemed a lawful prize, and the court of admiralty, within the said colony, is required, on condemnation thereof, to adjudge that all charges and expences, which may attend the capture and trial, be first paid out of the monies arising from the sales of the prize, and the remainder equally divided among all those who have been actually engaged and employed in taking the said prize. Provided that where any detachments of the army shall have been employed as aforesaid, their part of the prize-money shall be distributed among them in proportion to the pay of the officers and soldiers so employed.

(Extract from the Minutes.)

“CHARLES THOMPSON, Sec.”

In Congress, May 15, 1776.

“Whereas his Britannic Majesty, in conjunction with the lords and commons of Great-Britain, has, by a late act of parliament, excluded the inhabitants of these United Colonies from the protection of his crown. And whereas no answer whatever, to the humble petitions of the colonies for redress of grievances and reconciliation with Great-Britain, has been, or is likely to be given, but the whole force of that kingdom, aided by foreign mercenaries, is to be exerted for the destruction of the good people of these colonies. And whereas it appears absolutely irreconcilable to reason and good conscience, for the people of these colonies *now* to take the oaths and affirmations necessary for the support of any government under the crown of Great-Britain; and it is necessary that the exercise of every kind of authority under the said crown should be totally suppressed, and all the powers of government exerted under the people of these colonies, for the preservation

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tion of internal peace, virtue, and good order, as well as for the defence of their lives, liberties, and properties, against the hostile invasion and cruel depredations of their enemies. Therefore,

“*Resolved*, That it be recommended to the respective assemblies and conventions of the United Colonies, where no government sufficient to the exigency of their affairs has been hitherto established, to adopt such government as shall, in the opinion of the representatives of the people, best conduce to the happiness and safety of their constituents in particular, and America in general.

(*By order of the Congress.*)

“JOHN HANCOCK, President.”

In Congress, July 4, 1776.

A Declaration by the Representatives of the United States of America, in General Congress assembled.

“When, in the course of human events, it becomes necessary for one people to dissolve the political bands, which have connected them with another, and to assume among the powers of the earth, the separate and equal station to which the laws of nature, and of nature’s God entitle them, a decent respect to the opinions of mankind requires that they should declare the causes which impel them to the separation.

“We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator, with certain inalienable rights; that among these are life, liberty, and the pursuit of happiness. (*How specious, yet how palpably inconsistent these declarations from a people holding slaves.*) That to secure these rights, governments are instituted among men, deriving their just powers from the consent of the governed; that whenever any form of government becomes destructive of these ends, it is the right of the people to alter or to abolish it, and to institute a new government, laying it’s foundation on such principles, and organizing it’s powers in such form, as to them shall seem most likely to effect their safety and happiness. Prudence, indeed, will dictate that governments long established should not be changed for light and transient causes; and accordingly all experience hath shewn, that mankind are more disposed to suffer, while evils are sufferable, than to right themselves by abolishing the forms to which they are accustomed. But when a long train of abuses and usurpations, pursuing invariably the same object, evinces a design to reduce them under absolute despotism, it is their right, it is their duty, to throw off such government, and to provide new guards for their future security. Such has been the patient sufferance of these colonies, and such is now the necessity which constrains them to alter their former systems of government. The history of the present king of Great-Britain is a history of repeated injuries and usurpations, all having in direct object the establishment of an absolute tyranny over these states. To prove this, let facts be submitted to a candid world.

He has refused to assent to laws, the most wholesome and necessary for the public good.

He has forbidden his governors to pass laws of immediate and pressing importance, unless suspended in their operation till his assent should

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be obtained; and, when so suspended, he has utterly neglected to attend to them.

He has refused to pass other laws for the accommodation of large districts of people, unless those people would relinquish the right of representation in the legislature, a right inestimable to them, and formidable to tyrants only.

He has called together legislative bodies at places unusual, uncomfortable, and distant from the depository of their public records, for the sole purpose of fatiguing them into compliance with his measures.

He has dissolved representative houses repeatedly, for opposing, with manly firmness, his invasions on the rights of the people.

He has refused, for a long time after such dissolutions, to cause others to be elected; whereby the legislative powers, incapable of annihilation, have returned to the people at large for their exercise; the state remaining at the same time exposed to all the dangers of invasion from without, and convulsions within.

He has endeavoured to prevent the population of these states; for that purpose obstructing the laws for naturalization of foreigners; refusing to pass others to encourage their migrations hither, and raising the conditions of new appropriations of lands.

He has obstructed the administration of justice, by refusing his assent to laws for establishing judiciary powers.

He has made judges dependent on his will alone, for the tenure of their offices, and the amount and payment of their salaries.

He has erected a multitude of new offices, and sent hither swarms of officers to harass our people, and eat out their substance.

He has kept among us, in times of peace, standing armies, without the consent of our legislatures.

He has affected to render the military independent of, and superior to, the civil power.

He has combined with others to subject us to a jurisdiction foreign to our constitution, and acknowledged by our laws; giving his assent to their acts of legislation:

For quartering large bodies of armed troops among us:

For protecting them, by a mock trial, from punishment for any murders which they should commit on the inhabitants of these states:

For cutting off our trade with all parts of the world:

For imposing taxes on us without our consent:

For depriving us, in many cases, of the benefits of trial by jury:

For transporting us beyond seas to be tried for pretended offences:

For abolishing the free system of English laws in a neighbouring province, establishing therein an arbitrary government, and enlarging its boundaries, so as to render it at once an example and fit instrument for introducing the same absolute rule into these colonies:

For taking away our charters, abolishing our most valuable laws, and altering fundamentally the forms of our governments:

For suspending our own legislatures, and declaring themselves invested with power to legislate for us in all cases whatsoever.

He has abdicated government here, by declaring us out of his protection, and waging war against us.

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He has plundered our seas, ravaged our coasts, burnt our towns, and destroyed the lives of our people.

He is, at this time, transporting large armies of foreign mercenaries to complete the works of death, desolation, and tyranny, already begun with circumstances of cruelty and perfidy, scarcely paralleled in the most barbarous ages, and totally unworthy the head of a civilized nation.

He has constrained our fellow-citizens, taken captive on the high seas, to bear arms against their country, to become the executioners of their friends and brethren, or to fall themselves by their hands.

He has excited domestic insurrections amongst us, and has endeavoured to bring on the inhabitants of our frontiers the merciless Indian savages, whose known rule of warfare is an undistinguished destruction of all ages, sexes, and conditions.

In every stage of these oppressions we have petitioned for redress in the most humble terms: our repeated petitions have been answered only by repeated injury. A prince, whose character is thus marked by every act which may define a tyrant, is unfit to be the ruler of a free people.

Nor have we been wanting in attention to our British brethren. We have warned them from time to time of attempts made by their legislature to extend an unwarrantable jurisdiction over us. We have reminded them of the circumstances of our emigration and settlement here. We have appealed to their native justice and magnanimity, and we have conjured them, by the ties of our common kindred, to disavow these usurpations, which would inevitably interrupt our connections and correspondences. They too have been deaf to the voice of justice and of consanguinity. We must, therefore, acquiesce in the necessity, which denounces our separation, and hold them, as we hold the rest of mankind; enemies in war; in peace, friends.

We, therefore, the representatives of the United States of America, in General Congress assembled, appealing to the Supreme Judge of the world for the rectitude of our intentions, do, in the name, and by authority of the good people of these colonies, solemnly publish and declare, that these United Colonies are, and of right ought to be, FREE AND INDEPENDENT STATES; that they are absolved from all allegiance to the British crown, and that all political connection between them and the state of Great Britain is, and ought to be, totally dissolved; and that, as Free and Independent States, they have full power to levy war, conclude peace, contract alliances, establish commerce, and do all other acts and things which Independent States may of right do. And for the support of this declaration, with a firm reliance on the protection of Divine Providence, we mutually pledge to each other our lives, our fortunes, and our sacred honour.

Signed by order, and in behalf of the Congress,

“JOHN HANCOCK, President.”

“CHARLES THOMSON, Sec.”

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At the same time they published articles of confederation and perpetual union between the states, in which they took the style of "*The United States of America*," and agreed that each state should retain it's sovereignty, freedom, and independence, and every power, jurisdiction, and right not expressly delegated to congress by the confederation. By these articles, the Thirteen United States severally entered into a firm league of friendship with each other for their common defence, the security of their liberties, and their mutual and general welfare, and bound themselves to assist each other, against all force offered to, or attacks that might be made upon all, or any of them, on account of religion, sovereignty, commerce, or any other pretence whatever. But for the more convenient management of the general interests of the United States, it was determined that delegates should be annually appointed, in such manner as the legislature of each state should direct, to meet in congress the first Monday of November of every year, with a power reserved to each state to recall it's delegates, or any of them, at any time within the year, and send others in their stead for the remainder of the year. No state was to be represented in congress by less than two, or more than seven members; and no person could be a delegate for more than three years, in any term of six years; nor was any person, being a delegate, capable of holding any office under the United States, for which he, or any other for his benefit, should receive any salary, fees, or emolument of any kind. In determining questions in congress, each state was to have one vote. Every state was bound to abide by the determinations of congress in all questions which were submitted to them by the confederation. The articles of confederation were to be invariably observed by every state, and the union to be perpetual; nor was any alteration at any time hereafter to be made in any of the articles, unless such alterations be agreed to in congress, and be afterwards confirmed by the legislatures of every state.

We pass over the detail of the wars, and the aggravated atrocities, wherewith it's horrors were increased, and of the wretchedness and misery it induced in it's progress and it's train, both in the eastern and western world.

In the spring of 1782, Guy Carleton arrived in New-York, and took the command of the British army in America: immediately on his arrival, he acquainted George Washington and Congress, that negotiations for a peace had been commenced at Paris.

On the 30th of November, 1782, provisional articles of peace were signed at Paris; by which Great-Britain acknowledged the independence and sovereignty of the United States of America; and these articles were ratified by a definitive treaty.

Thus ended a long and arduous conflict, in which Great Britain expended near an hundred millions of money, with an hundred thousand lives, and won nothing. America endured every cruelty and distress, lost many lives and much treasure; but was delivered from a foreign dominion.

No sooner was peace restored by the definitive treaty, and the British troops withdrawn from the country, than the United States began

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to experience the defects of their general government. While an enemy was in the country, fear, which had first impelled the colonists to associate in mutual defence, continued to operate as a band of political union. It gave to the resolutions and recommendations of congress the force of laws, and generally commanded a ready acquiescence on the part of the state legislatures. Articles of confederation and perpetual union had been framed in congress, and submitted to the consideration of the states, in the year 1778. Some of the states immediately acceded to them; but others, which had not unappropriated lands, hesitated to subscribe a compact, which would give an advantage to the states, which possessed large tracts of unlocated lands, and were thus capable of a great superiority in wealth and population. All objections, however, had been overcome, and by the accession of Maryland in 1781, the articles of confederation were ratified, as the frame of government for the United States.

These articles of confederation, after eleven years experience, being found inadequate to the purposes of a federal government, for reasons hereafter mentioned, delegates were chosen in each of the United States, to meet, and fix upon the necessary amendments. They accordingly met in convention at Philadelphia, in the summer of 1787, and agreed to propose the following constitution for the consideration of their constituents: which was afterwards adopted.

The Constitution of the United States of America.

We, the people of the United States, in order to form a more perfect union, establish justice, insure domestic tranquillity, provide for the common defence, promote the general welfare, and secure the blessings of liberty to ourselves and our posterity, do ordain and establish this constitution for the United States of America.

ARTICLE I.

SECT. 1. All legislative powers herein granted, shall be vested in a congress of the United States, which shall consist of a senate, and house of representatives.

SECT. 2. The house of representatives shall be composed of members chosen every second year by the people of the several states; and the electors in each state shall have the qualifications requisite for electors of the most numerous branch of the state legislature.

No person shall be a representative who shall not have attained to the age of twenty-five years, and been seven years a citizen of the United States, and who shall not, when elected, be an inhabitant of that state in which he shall be chosen.

Representatives and direct taxes shall be apportioned among the several states which may be included within this union, according to their respective numbers, which shall be determined by adding to the whole number of free persons, including those bound for service for a term of years, and, excluding Indians not taxed, three-fifths of all

other persons. The actual enumeration shall be made within three years after the first meeting of the congress of the United States, and within every subsequent term of ten years, in such manner as they shall by law direct. The number of representatives shall not exceed one for every thirty thousand, but each state shall have at least one representative; and, until such enumeration shall be made, the state of New-Hampshire shall be entitled to chuse three; Massachusetts, eight; Rhode Island and Providence Plantations, one; Connecticut, five; New York, six; New Jersey, four; Pennsylvania, eight; Delaware, one; Maryland, six; Virginia, ten; North Carolina, five; South Carolina, five; and Georgia, three.

When vacancies happen in the representation from any state, the executive authority thereof shall issue writs of election to fill such vacancies.

The house of representatives shall chuse their speaker and other officers; and shall have the sole power of impeachment.

Sec. 3. The senate of the United States shall be composed of two senators from each state, chosen by the legislature thereof, for six years; and each senator shall have one vote.

Immediately after they shall be assembled, in consequence of the first election, they shall be divided, as equally as may be, into three classes. The seats of the senators of the first class shall be vacated at the expiration of the second year, of the second class at the expiration of the fourth year, and of the third class at the expiration of the sixth year; so that one-third may be chosen every second year; and if vacancies happen, by resignation or otherwise, during the recess of the legislature of any state, the executive thereof may make temporary appointments until the next meeting of the legislature, which shall then fill such vacancies.

No person shall be a senator who shall not have attained to the age of thirty years, and been nine years a citizen of the United States, and who shall not, when elected, be an inhabitant of that state for which he shall be chosen.

The vice-president of the United States shall be president of the senate, but shall have no vote, unless they be equally divided.

The senate shall chuse their other officers, and also a president *pro tempore*, in the absence of the vice-president, or when he shall exercise the office of president of the United States.

The senate shall have the sole power to try all impeachments. When sitting for that purpose, they shall be on oath or affirmation. When the president of the United States is tried, the chief justice shall preside; and no person shall be convicted without the concurrence of two-thirds of the members present.

Judgment, in cases of impeachment, shall not extend further than to removal from office, and disqualification to hold and enjoy any office of honour, trust, or profit, under the United States; but the party convicted shall nevertheless be liable and subject to indictment, trial, judgment, and punishment, according to law.

Sec. 4. The times, places, and manner of holding elections for senators and representatives, shall be prescribed in each state by the legislature

lature thereof; but the congress may, at any time, by law, make or alter such regulations, except as to the places of chusing senators.

The congress shall assemble at least once in every year; and such meeting shall be on the first Monday in December, unless they shall, by law, appoint a different day.

Sec. 5. Each house shall be the judge of the elections, returns, and qualifications of it's own members, and a majority of each shall constitute a quorum to do business, but a smaller number may adjourn, from day to day, and may be authorized to compel the attendance of absent members, in such manner, and under such penalties as each house may provide.

Each house may determine the rules of it's proceedings, punish it's members for disorderly behaviour, and, with the concurrence of two-thirds, expel a member.

Each house shall keep a journal of it's proceedings, and from time to time publish the same, excepting such parts as may, in their judgment, require secrecy; and the yeas and nays of the members of either house, on any question, shall, at the desire of one-fifth of those present, be entered on the journal.

Neither house, during the session of congress, shall, without the consent of other, adjourn for more than three days, nor to any other place than that in which the two houses shall be sitting.

Sec. 6. The senators and representatives shall receive a compensation for their services, to be ascertained by law, and paid out of the treasury of the United States. They shall, in all cases, except treason, felony, and a breach of the peace, be privileged from arrest during their attendance at the session of their respective houses, and in going to and returning from the same; and for any speech or debate in either house, they shall not be questioned in any other place.

No senator or representative shall, during the time for which he was elected, be appointed to any civil office under the authority of the United States, which shall have been created, or the emoluments whereof shall have been increased during such time; and no person holding any office under the United States shall be a member of either house during his continuance in office.

Sec. 7. All bills for raising revenue shall originate in the house of representatives; but the senate may propose, or concur, with amendments, as on other bills.

Every bill, which shall have passed the house of representatives and the senate, shall, before it become a law, be presented to the president of the United States: if he approve, he shall sign it; but, if not, he shall return it, with his objections, to that house in which it shall have originated, who shall enter the objections at large on their journal, and proceed to reconsider it. If, after such reconsideration, two-thirds of that house shall agree to pass the bill, it shall be sent, together with the objections, to the other house, by which it shall likewise be reconsidered; and, if approved by two-thirds of that house, it shall become a law. But in all such cases, the votes of both houses shall be determined by yeas and nays; and the names of the persons voting for and against the bill, shall be entered on the journal of each house respectively.

spectively. If any bill shall not be returned by the president within ten days (Sundays excepted) after it shall have been presented to him, the same shall be a law, in like manner as if he had signed it, unless the congress, by their adjournment, prevent it's return, in which case it shall not be a law.

Every order, resolution, or vote, to which the concurrence of the senate and house of representatives may be necessary (except on a question of adjournment) shall be presented to the President of the United States; and before the same shall take effect, shall be approved by him; or, being disapproved by him, shall be repassed by two-thirds of the senate and house of representatives, according to the rules and limitations prescribed in the case of a bill.

Secl. 8. The congress shall have power—

To lay and collect taxes, duties, imposts, and excises; to pay the debts, and provide for the common defence and general welfare of the United States; but all duties, imposts, and excises, shall be uniform throughout the United States:

To borrow money on the credit of the United States:

To regulate commerce with foreign nations, and among the several states, and with the Indian tribes:

To establish an uniform rule of naturalization, and uniform laws on the subject of bankruptcies throughout the United States:

To coin money, regulate the value thereof, and of foreign coin, and fix the standard of weights and measures:

To provide for the punishment of counterfeiting the securities and current coin of the United States:

To establish post-offices and post-roads:

To promote the progress of science and useful arts, by securing, for limited times, to authors and inventors, the exclusive right to their respective writings and discoveries:

To constitute tribunals inferior to the supreme court:

To define and punish piracies and felonies committed on the high seas, and offences against the law of nations:

To declare war, grant letters of marque and reprisal, and make rules concerning captures on land and water:

To raise and support armies; but no appropriation of money to that use shall be for a longer term than two years:

To provide and maintain a navy:

To make rules for the government and regulation of the land and naval forces:

To provide for calling forth the militia to execute the laws of the union, suppress insurrections, and repel invasions:

To provide for organizing, arming, and disciplining the militia, and for governing such part of them as may be employed in the service of the United States, reserving to the states respectively, the appointment of the officers, and the authority of training the militia according to the discipline prescribed by congress:

To exercise exclusive legislation in all cases whatsoever, over such district (not exceeding ten miles square) as may by cession of particular states, and the acceptance of congress, become the seat of the government

verment of the United States, and to exercise like authority over all places purchased by the consent of the legislature of the state in which the same shall be, for the erection of forts, magazines, arsenals, dock-yards, and other needful buildings;—And

To make all laws which shall be necessary and proper for carrying into execution the foregoing powers, and all other powers vested by this constitution in the government of the United States, or in any department or office thereof.

Sec. 9. The migration, or importation, of such persons as any of the states now existing shall think proper to admit, shall not be prohibited by the congress prior to the year 1808 : but a tax or duty may be imposed on such importation, not exceeding ten dollars for each person.

The privilege of the writ of *habeas corpus* shall not be suspended, unless when, in cases of rebellion or invasion, the public safety may require it.

No bill of attainder, or *ex post facto* law, shall be passed.

No capitation, or other direct tax, shall be laid, unless in proportion to the *cenfus*, or enumeration herein-before directed to be taken.

No tax or duty shall be laid on articles exported from any state. No preference shall be given by any regulation of commerce or revenue to the ports of one state over those of another : nor shall vessels bound to or from one state be obliged to enter, clear, or pay duties in another.

No money shall be drawn from the treasury, but in consequence of appropriations made by law ; and a regular statement and account of the receipts and expenditures of all public money shall be published from time to time.

No title of nobility shall be granted by the United States : and no person holding any office of profit or trust under them, shall, without the consent of congress, accept of any present, emolument, office, or title, of any kind whatever, from any king, prince, or foreign state.

Sec. 10. No state shall enter into any treaty, alliance, or confederation ; grant letters of marque and reprisal ; coin money, emit bills of credit ; make any thing but gold and silver coin a tender in payment of debts ; pass any bill of attainder, *ex post facto* law, or law impairing the obligation of contracts, or grant any title of nobility.

No state shall, without the consent of the congress, lay any imposts, or duties on imports or exports, except what may be absolutely necessary for executing it's inspection laws ; and the net produce of all duties and imposts, laid by any state on imports or exports, shall be for the use of the treasury of the United States ; and all such laws shall be subject to the revision and control of the congress. No state shall, without the consent of congress, lay any duty of tonnage, keep troops, or ships of war in time of peace, enter into any agreement or compact with another state, or with a foreign power, or engage in war, unless actually invaded, or in such imminent danger as will not admit of delay.

ARTICLE II.

Sec. 1. The executive power shall be vested in a president of the United States of America. He shall hold his office during the term of

four years, and, together with the vice-president, chosen for the same term, be elected as follows:

Each state shall appoint, in such manner as the legislature thereof may direct, a number of electors, equal to the whole number of senators and representatives to which the state may be entitled in the congress: but no senator, or representative, or person holding an office of trust or profit under the United States, shall be appointed an elector.

The electors shall meet in their respective states, and vote by ballot for two persons, of whom one at least shall not be an inhabitant of the same state with themselves. And they shall make a list of all the persons voted for, and of the number of votes for each; which list they shall sign and certify, and transmit, sealed, to the seat of the government of the United States, directed to the president of the senate. The president of the senate shall, in the presence of the senate and house of representatives, open all the certificates, and the votes shall then be counted. The person having the greatest number of votes shall be the president, if such number be a majority of the whole number of electors appointed; and if there be more than one who have such majority, and have an equal number of votes, then the house of representatives shall immediately chuse by ballot one of them for president; and if no person have a majority, then from the five highest on the list the said house shall in like manner chuse the president. But in chusing the president, the votes shall be taken by states, the representation from each state having one vote; a quorum for this purpose shall consist of a member or members from two-thirds of the states, and a majority of all the states shall be necessary to a choice. In every case after the choice of the president, the person having the greatest number of votes of the electors shall be the vice-president. But if there should remain two or more who have equal votes, the senate shall chuse from them, by ballot, the vice-president.

The congress may determine the time of chusing the electors, and the day on which they shall give their votes; which day shall be the same throughout the United States.

No person, except a natural-born citizen, or a citizen of the United States, at the time of the adoption of this constitution, shall be eligible to the office of president; neither shall any person be eligible to that office, who shall not have attained to the age of thirty-five years, and been fourteen years a resident within the United States.

In case of the removal of the president from office, or of his death, resignation, or inability to discharge the powers and duties of the said office, the same shall devolve on the vice-president; and the congress may by law provide for the case of removal, death, resignation, or inability, both of the president and vice-president, declaring what officer shall then act as president; and such officer shall act accordingly, until the disability be removed, or a president shall be elected.

The president shall, at stated times, receive for his services a compensation, which shall neither be increased nor diminished during the period for which he shall have been elected; and he shall not receive within that period any other emolument from the United States, or any of them.

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Before he enter on the execution of his office, he shall take the following oath or affirmation :

“ I do solemnly swear (or affirm) that I will faithfully execute the office of president of the United States ; and will, to the best of my ability, preserve, protect, and defend the constitution of the United States.”

Sec. 2. The president shall be commander in chief of the army and navy of the United States, and of the militia of the several states, when called into the actual service of the United States ; he may require the opinion, in writing, of the principal officer in each of the executive departments, upon any subject relating to the duties of their respective offices, and he shall have power to grant reprieves and pardons for offences against the United States, except in cases of impeachment.

He shall have power, by and with the advice and consent of the senate, to make treaties, provided two-thirds of the senators present concur ; and he shall nominate, and by and with the advice and consent of the senate, shall appoint ambassadors, other public ministers and consuls, judges of the supreme court, and all other officers of the United States, whose appointments are not herein otherwise provided for, and which shall be established by law. But the congress may by law vest the appointment of such inferior officers as they think proper in the president alone, in the courts of law, or in the heads of departments.

The president shall have power to fill up all vacancies that may happen during the recess of the senate, by granting commissions, which shall expire at the end of their next session.

Sec. 3. He shall from time to time give to the congress information of the state of the Union, and recommend to their consideration such measures as he shall judge necessary and expedient : he may on extraordinary occasions, convene both houses, or either of them ; and in case of disagreement between them, with respect to the time of adjournment, he may adjourn them to such times as he shall think proper : he shall receive ambassadors and other public ministers : he shall take care that the laws be faithfully executed, and shall commission all the officers of the United States.

Sec. 4. The president, vice-president, and all civil officers of the United States, shall be removed from office on impeachment for, and conviction of, treason, bribery, or other high crimes and misdemeanors.

ARTICLE III.

Sec. 1. The judicial power of the United States shall be vested in one supreme court, and in such inferior courts as the congress may, from time to time, ordain and establish. The judges, both of the supreme and inferior court, shall hold their offices during good behaviour ; and shall, at stated times, receive for their services a compensation, which shall not be diminished during their continuance in office.

Sec. 2. The judicial power shall extend to all cases, in law and equity, arising under this constitution, the laws of the United States, and treaties made, or which shall be made, under their authority ; to all

all cases affecting ambassadors, other public ministers, and consuls; to all cases of admiralty and maritime jurisdiction; to controversies to which the United States shall be a party; to controversies between two or more states; between a state and citizens of another state; between citizens of different states; between citizens of the same state claiming lands under grants of different states; and between a state, or the citizens thereof, and foreign states, citizens, or subjects.

In all cases affecting ambassadors, other public ministers, and consuls, and those in which a state shall be a party, the supreme court shall have original jurisdiction. In all the other cases before mentioned, the supreme court shall have appellate jurisdiction, both as to law and fact, with such exceptions, and under such regulations as the congress shall make.

The trial of all crimes, except in cases of impeachment, shall be by jury; and such trial shall be held in the state where the said crimes shall have been committed; but when not committed within any state, the trial shall be at such place or places as the congress may by law have directed.

Sec. 3. Treason against the United States shall consist only in, levying war against them, or in adhering to their enemies, giving them aid and comfort. No person shall be convicted of treason unless on the testimony of two witnesses to the same overt act, or on confession in open court.

The congress shall have power to declare the punishment of treason; but no attainder of treason shall work corruption of blood, or forfeiture, except during the life of the person attainted.

ARTICLE IV.

Sec. 1. Full faith and credit shall be given in each state to the public acts, records, and judicial proceedings of every other state. And the congress may by general laws prescribe the manner in which such acts, records, and proceedings shall be proved, and the effect thereof.

Sec. 2. The citizens of each state shall be entitled to all privileges and immunities of citizens in the several states.

A person charged in any state with treason, felony, or other crime, who shall flee from justice, and be found in another state, shall, on demand of the executive authority of the state from which he fled, be delivered up, to be removed to the state having jurisdiction of the crime.

No person, held to service or labour in one state, under the laws thereof, escaping into another, shall, in consequence of any law or regulation therein, be discharged from such service or labour, but shall be delivered up on claim of the party to whom such service or labour may be due.

Sec. 3. New states may be admitted by the congress into this Union; but no new state shall be formed or erected within the jurisdiction of any other state; nor any state be formed by the junction of two or more states, or parts of states, without the consent of the legislatures of the states concerned, as well as of the congress.

The congress shall have power to dispose of and make all needful rules and regulations respecting the territory or other property belonging

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ing to the United States : and nothing in this constitution shall be so construed as to prejudice any claims of the United States, or of any particular state.

Sect. 4. The United States shall guarantee to every state in this Union a republican form of government, and shall protect each of them against invasion ; and on application of the legislature, or of the executive (when the legislature cannot be convened) against domestic violence.

ARTICLE V.

The congress, whenever two-thirds of both houses shall deem it necessary, shall propose amendments to this constitution, or, on the application of the legislatures of two-thirds of the several states, shall call a convention for proposing amendments, which, in either case, shall be valid to all intents and purposes, as part of this constitution, when ratified by the legislatures of three-fourths of the several states, or by conventions in three-fourths thereof, as the one or the other mode of ratification may be proposed by the congress : Provided, that no amendment, which may be made prior to the year one thousand eight hundred and eight, shall in any manner affect the first and fourth clauses in the ninth section of the first article ; and that no state, without it's consent, shall be deprived of it's equal suffrage in the senate.

ARTICLE VI.

All debts contracted, and engagements entered into, before the adoption of this constitution, shall be as valid against the United States under this constitution, as under the confederation.

This constitution, and the laws of the United States, which shall be made in pursuance thereof ; and all treaties made, or which shall be made, under the authority of the United States, shall be the supreme law of the land ; and the judges in every state shall be bound thereby, any thing in the constitution or laws of any state to the contrary notwithstanding.

The senators and representatives before-mentioned, and the members of the several state legislatures, and all executive and judicial officers, both of the United States and of the several states, shall be bound by oath or affirmation to support this constitution ; but no religious test shall ever be required as a qualification to any office or public trust under the United States.

ARTICLE VII.

The ratification of the conventions of nine states shall be sufficient for the establishment of this constitution, between the states so ratifying the same.

Done in convention, by the unanimous consent of the states present, the seventeenth day of September, in the year of our Lord one thousand seven hundred and eighty-seven, and of the independence of the United States of America the twelfth.

“ GEORGE WASHINGTON, PRESIDENT,”

Articles in addition to, and amendment of, the Constitution of the United States of America, proposed by Congress, and ratified by the Legislatures of the several States, pursuant to the fifth Article of the original Constitution.

ARTICLE I.

After the first enumeration required by the first article of the constitution, there shall be one representative for every thirty thousand, until the number shall amount to one hundred, after which the proportion shall be so regulated by congress, that there shall be not less than one hundred representatives, nor less than one representative for every forty thousand persons, until the number of representatives shall amount to two hundred; after which the proportion shall be so regulated by congress, that there shall not be less than two hundred representatives, nor more than one representative for every fifty thousand persons.

ARTICLE II.

No law varying the compensation for the services of the senators and representatives shall take effect, until an election of representatives shall have intervened.

ARTICLE III.

Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof: or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the government for a redress of grievances.

ARTICLE IV.

A well-regulated militia being necessary to the security of a free state, the right of the people to keep and bear arms shall not be infringed.

ARTICLE V.

No soldier shall, in time of peace, be quartered in any house without the consent of the owner, nor in time of war, but in a manner to be prescribed by law.

ARTICLE VI.

The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no warrant shall issue, but upon probable cause, supported by oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.

ARTICLE VII.

No person shall be held to answer for a capital or otherwise infamous crime, unless on a presentment or indictment of a grand jury, except in cases arising in the land or naval forces, or in the militia, when in actual service in time of war or public danger; nor shall any person be subject for the same offence to be twice put in jeopardy of life or limb; nor shall be compelled in any criminal case to be a witness against himself, nor be deprived of life, liberty, or property without due process of law; nor shall private property be taken for public use without just compensation.

ARTICLE VIII.

In all criminal prosecutions the accused shall enjoy the right to a speedy and public trial, by an impartial jury of the state and district wherein

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wherein the crime shall have been committed, which district shall have been previously ascertained by law, and to be informed of the nature and cause of the accusation; to be confronted with the witnesses against him; to have compulsory process for obtaining witnesses in his favour, and to have the assistance of counsel for his defence.

ARTICLE IX.

In suits at common law, where the value in controversy shall exceed twenty dollars, the right of trial by jury shall be preserved, and no fact, tried by a jury, shall be otherwise re-examined in any court of the United States, than according to the rules of the common law.

ARTICLE X.

Excessive bail shall not be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted.

ARTICLE XI.

The enumeration in the constitution, of certain rights, shall not be construed to deny or disparage others retained by the people.

ARTICLE XII.

The powers not delegated to the United States by the constitution, nor prohibited by it to the states, are reserved to the states respectively, or to the people.

“FREDERICK AUGUSTUS MULHENBERG,

“*Speaker of the House of Representatives.*”

“JOHN ADAMS, *Vice President of the United States,*
and *President of the Senate.*

Attest. { JOHN BECKLEY, *Clerk of the House of Representatives.*
SAM. A. OTIS, *Secretary of the Senate.*

In the constitution of the states, we see enough of absurdity to provoke a smile, were it not that there can hardly any absurdity exist in society, but what is productive of evil, or gives pain to some solitary victims, or to injured bodies of people. These republicans, in their movements, seem to have been shackled with the ancient prejudices of Europe. Having been long under masters, and a distorted and jargonic system of jurisprudence, they seem, in shaking off their allegiance to the metropole, to have yet retained many of the old prejudices, follies, and even superstitions. The congress is formed of an upper and lower house, and a head over all; and this check-giving principle grates through the whole political machine, the legislatures of the particular states (Pennsylvania excepted, where they have only one house) being generally more embarrassed and shackled with the formalities of their original pattern, than the congress of the states: and in some, they are so far from understanding the true rights of man, that religious profession affects the privileges of the citizen. Though the proper business of legislation should only have regard to the affairs of men, to the social obligations, they presume in their deliberations to speak, like other nations, of the Supreme Being, and of Providence; they pretend to interfere between man and his Creator, by the absurd officiousness of requiring the people to support public worship, by blending together, legislatively, civil and ecclesiastical regulations in their colleges, and in their marriages; and, finally, by their appointing the time when the people shall say their prayers, and when they shall religiously cease to eat.

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The principle of equality, that simple idea, appears, yet, to have been too sublime for them to have ever conceived. The republic of America is not one and indivisible. It is a combination of different states with different views and interests. An individual, in changing his situation in that land, finds his privileges to vary. The laws are not equal. Men are articles of traffic; may be bought and sold, like any other property, in one part of the republic; in other parts, slavery is formally abolished.

But are any of the states clear of the crime of supporting slavery? even mercantile slavery? (for political slavery, or unequal rights, has existed, since the idea was first unhappily conceived, of marking out, by hedge, ditch, or wall, the artificial system of *meum* and *tuum*, or of private or individual property: yet he, in every age, who conscientiously applies his time and his possessions to the good of society, is clear of supporting this general enslavement of the human kind.) The states all concur in setting up a man to rule over them, who holds his fellows in bondage, or in personal slavery. His conduct, in this respect, they do not dare to censure, and his panegyrists conceal his inconsistency, by giving his slaves the soft appellation of, servants or labourers. (See the third clause of Sect. 2. the first of Sect. 9. Art. I. and the last clause of Sect. 2. Art. IV. of their constitution.)

The punishment of death may also be inflicted in the states, by those, who, from their sanguinary profession, are in danger of losing the tender feelings of humanity. The soldier of the states, as well as of Europe, may, in certain cases, be put to death by his masters, the officers, without a trial by a jury of his peers. Finally, the states in congress have had the absurdity, though rejecting religious tests, to attempt to impose the doctrine of their political infallibility, on succeeding generations. (See last clause in Art. 6 of their constitution.)

While we mourn over the prejudices wherewith this rising people are beset, the friends of humanity must rejoice to see them cutting short the barbarous and sanguinary code of laws which they derived from Europe. The American criminal law, in civil courts, only retaliates murder, or inflicts death on those who have themselves first committed this horrid crime. But whilst they are thus cutting short the homicidal part of their laws, Europeans are seeing their fellow-subjects, who never sold their national privileges, subjected to the pain of death; and subjected, however unwillingly, to the pain of being executioners of that death, at the discretion of a set of men who cannot be supposed to be disinterested. The military, in some parts, have risen from want of bread, and committed, *vi et armis*, depredations in the country: their officers (the most tyrannical of them, perhaps, afraid of falling in such tumults) have ordered them to be shot by some of their comrades.

SECTION LVI.

Description of the United States.

The states, east of New-York, were formerly called the New-England Colonies: they are still known by the general name of New-England, and several things are common to them all.

As the territory of Vermont was included in some of the original patents granted by the Plymouth Company, and was settled wholly from New-England, it is considered as a part of it, and is 350 miles in length, and 140 in breadth.

437. *States of New-England.*] New-England is bounded on the north by Canada; east by Nova-Scotia, and the Atlantic Ocean; south by the Atlantic and Long-Island Sound, and west by New-York. It lies in the form of a quarter of a circle. Its west line, beginning at the mouth of Byram river, which empties into Long-Island Sound, at the south-west corner of Connecticut, latitude 41 deg. runs a little east of north, until it strikes the 45th degree of latitude, and then curves to the eastward almost to the Gulf of St. Lawrence.

It is divided into five states, viz. New-Hampshire, Massachusetts, Rhode-Island, Connecticut, and Vermont. The states are subdivided into counties, and the counties into townships.

New-England is a high, hilly, and in some parts, a mountainous country. The mountains are comparatively small, running nearly north and south in ridges parallel to each other. Between these ridges, flow the great rivers in large meanders, receiving the innumerable rivulets and larger streams which proceed from the mountains on each side. To a spectator on the top of a neighbouring mountain, the vales between the ridges, while in a state of nature, exhibit a romantic appearance. They seem an ocean of woods, swelled and depressed in its surface like that of the great ocean itself. A richer, though less romantic view, is presented, when the valleys, by industrious husbandmen, have been cleared of their natural growth; and the fruit of their labour appears in loaded orchards, extensive meadows, covered with large herds of sheep and neat cattle, and rich fields of flax, corn, and the various kinds of grain. These valleys, which have received the expressive name of *interval lands*, are of various breadths, from two to twenty miles; and by the annual inundations of the rivers which flow through them, there is frequently an accumulation of rich, fat soil, left upon their surface, when the waters retire.

The ranges of mountains are full of lakes, ponds, and springs of water, that give rise to numberless streams of various sizes, which, interlocking each other in every direction, and falling over the rocks in romantic cascades, flow meandering into the rivers below. On the sea-

sea-coast the land is low, and in many parts level and sandy. In the valleys, between the fore-mentioned ranges of mountains, the land is generally broken, and in many places rocky, but of a strong rich soil, capable of being cultivated to good advantage, which also is the case with many spots, even on the tops of the mountains.

On the beautiful river Connecticut, whose banks are settled almost to it's source, are many pleasant, neat, well-built towns. On it's western bank, from it's mouth northward, are the towns of Saybrook, Haddam, Middleton, Weathersfield, Hartford, Windsor, and Suffield, in Connecticut; West Springfield, Northampton, Hatfield, and Deerfield, in Massachusetts: Guildford, Brattleborough, in which is Fort Dummer, Westminster, Windsor, Hartford, Fairlee, Newbury, Brunswick, and many others in Vermont. On the eastern bank, in New-Hampshire, are Woodbury nearly opposite to Brunswick, Northumberland, the Coos country, Lynian, Orford, Lyme, Hanover, in which is Dartmouth college, Lebanon, Cornish, Clermont, Charleston, or No. 4, Chestersfield, and many others in New-Hampshire, Sunderland, Hadley, Springfield, Longmeadow, in Massachusetts; and in Connecticut, Enfield, East Windsor, East Hartford, Glastonbury, East Haddam, and Lyme.

This river is navigable to Hartford, upwards of fifty miles from it's mouth, and the produce of the country for two hundred miles above is brought thither in boats. The boats which are used in this business are flat-bottomed, long, and narrow, for the convenience of going up stream, and of so slight a make as to be portable in carts. They are taken out of the river at three different carrying places, all of which make fifteen miles. Sturgeon, salmon, and shad are caught in plenty, in their season, from the mouth of the river upwards, excepting sturgeon, which do not ascend the upper falls; besides a variety of small fish, such as pike, carp, perch, &c.

From this river are employed three brigs of one hundred and eighty tons each, in the European trade; and about sixty sail, from sixty to one hundred and fifty tons, in the West-India trade; besides a few fishermen, and forty or fifty coasting vessels.

The soil, as may be collected from what has been said, must be very various. Each tract of different soil is distinguished by it's peculiar vegetation, and is pronounced good, middling, or bad, from the species of trees which it produces; and one species generally predominating in each soil, has originated the descriptive names of oak land—birch, beech, and chestnut lands—pine barren—maple, ash, and cedar swamps, as each species happen to predominate. Intermingled with these predominating species are walnut, fir, elm, hemlock, magnolia, or moose wood, sassafras, &c. The best lands produce walnut and chestnut; the next beech and oak; the lands of the third quality produce fir and pitch pine; the next, whortleberry and barberry bushes; and the poorest produces nothing but poor, marshy, imperfect shrubs.

Among the flowering trees and shrubs in the forests, are the red flowering maple, the sassafras, the locust, the tulip-tree, the chestnut, the wild cherry, prune, crab, sloe, pear, honeysuckle, wild rose, dogwood, elm,

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elm, leather-tree, laurel, hawthorn, &c. which in the spring of the year give the woods a most beautiful appearance, and fill them with a delicious fragrance.

Among the fruits which grow wild, are the several kinds of grapes, which are small, four, and thick skinned. The vines on which they grow are very luxuriant, often overspreading the highest trees in the forests: and without doubt, might be greatly meliorated by proper cultivation.

In the interior country, the culture of Indian corn, rye, oats, barley, flax, and hemp, buck-wheat, beans, peas, &c. is carried on, for which the soil and climate are peculiarly proper. In many of the inland parts wheat is raised in large quantities; but on the sea-coast, it has never been cultivated with success, being subject to blasts. Various reasons have been assigned for this. Some have supposed that the blasts were occasioned by the saline vapours of the sea; others have attributed them to the vicinity of barberry bushes; but perhaps the sandiness and poverty of the soil may be as efficacious a cause as either of the others.

The fruits which the country yields from culture, are, apples in the greatest plenty; of these cyder is made, which constitutes the principal drink of the inhabitants; also, pears of various sorts, quinces, peaches, from which is made peach brandy; plumbs, cherries, apricots, &c. The culinary plants are also very plentiful.

New-England is a fine grazing country; the valleys, between the hills, are generally intersected with brooks of water, the banks of which are lined with a tract of rich meadow or interval land. The high and rocky ground is in many parts, covered with honeysuckle, and generally affords the finest of pasture.

New-England is the most populous part of the United States. It contains, at least, eight hundred and twenty-three thousand people, and may, with propriety, be called a nursery of men, whence are annually transplanted, into other parts of the United States, thousands of it's natives. The state of Vermont, which is but of yesterday, and contains about one hundred thousand people, has received more inhabitants from Connecticut, than from any other state; and yet, between the years 1774 and 1782, notwithstanding the numerous emigrations to Vermont, Susquehannah, and other places, and the depopulation occasioned by a seven years' war, it is found, from actual census of the inhabitants in the years before-mentioned, that they have increased from one hundred and ninety-seven thousand eight hundred and fifty-six, their number in 1774, to two hundred and nine thousand one hundred and fifty, their number in 1782. Vast numbers of the New-Englanders, since the war, have emigrated into the northern parts of New-York, into Kentucky and the Western Territory, and into Georgia; and some are scattered into every state and every town of note in the Union.

The people of New-England generally obtain their estates by hard and persevering labour, they of consequence know their value, and spend with frugality, yet in no country do the indigent fare better. Their laws oblige every town to provide a competent maintenance

for their poor, and the necessitous stranger is protected, and relieved, from their humane institutions. It is thought by some, that in no part of the world the people are happier, better furnished with the necessaries and conveniences of life, or more independent than the farmers in New-England. As the great body of the people are hardy and independent, their manners are congenial to their employment, plain, simple, and unpolished. Strangers are received and entertained among them with a great deal of artless sincerity, friendly, and unformal hospitality.

The inhabitants of New-England are generally fond of the arts, and have cultivated them with great success: and their colleges have flourished beyond many others in the United States.

The women in New-England make it a part of their daily business to superintend the affairs of the family. Employment at the needle, in cookery, and at the spinning-wheel, with them is honourable, and idleness is universally disreputable. The women in the country manufacture the greatest part of the clothing of their families. Their linen and woollen cloths are strong and decent. Their butter and cheese is not inferior to any in the world.

New-England has no one staple commodity. The ocean and the forest afford the two principal articles of export. Cod-fish, mackarel, shad, salmon, and other fish—whale-oil and whale-bone—masts, boards, scantling staves, hoops, and shingles, have been, and are still exported in large quantities. The annual amount of cod and other fish, for foreign exportation, including the profits arising from the whale-fishery, is estimated at upwards of half a million.

Besides the articles enumerated, they export from the various parts of New-England, ships built for sale, horses, mules, live stock—pickled beef and pork, pot-ash, pearl-ash, flax-seed, butter and cheese, rum, and other articles. From a view of annual imports into New-England, it appears that the greatest part of them consists of the luxuries, or at best the dispensable conveniences of life; the country affords the necessities in great abundance.

438. *New-York.*] The state of New-York is 350 miles in length, and 300 in breadth. It is bounded, south-eastwardly, by the Atlantic Ocean; east, by Connecticut, Massachusetts and Vermont; north, by the 45th degree of latitude, which divides it from Canada; north-westwardly; by the river Iroquois, or St. Lawrence, and the Lakes Ontario and Erie; south-west and south, by Pennsylvania and New-Jersey. The whole state contains about 44,000 square miles, equal to 28,160,000 acres.

Hudson's river is one of the largest and finest rivers in the United States. It rises in the mountainous country, between the Lakes Ontario and Champlain. Its length is about 250 miles. In its course southward, it approaches within a few miles of the Mohawks river, at Sauconauga. Thence it runs north and north-east towards Lake George, and is but six or eight miles from it. The course of the river thence to New-York, where it empties into York bay, is very uniformly south, 12 or 15 deg. west. From Albany to Lake George is sixty-five miles. This distance, the river is navigable only for bat-

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The banks of Hudson's river, especially on the western side, are chiefly rocky cliffs. The passage through the Highlands, which is sixteen miles, affords a wild, romantic scene. In this narrow pass, on each side of which the mountains tower to a great height, the wind, if there be any, is collected and compressed, and blows continually as through a bellows. Vessels, in passing through it, are often obliged to lower their sails. The bed of this river is deep and smooth to an astonishing distance, through a hilly, rocky country, and even through ridges of some of the highest mountains in the United States. The tide flows a few miles above Albany, which is 160 miles from New-York. It is navigable for sloops of 80 tons to Albany, and for ships to Hudson. About 60 miles above New-York, the water becomes fresh. The river is stored with a variety of fish, which renders a summer passage to Albany amusing to those who are fond of angling.

The advantages of this river, for carrying on the fur-trade with Canada, by means of the lakes, and its convenience for internal commerce, are singularly great. The produce of the remotest farms is easily and speedily conveyed to a certain and profitable market, and at the lowest expence. In this respect, New-York has greatly the advantage of Philadelphia. A great proportion of the produce of Pennsylvania is carried to market in waggons, over a great extent of country, some of which is rough: hence it is that Philadelphia is crowded with waggons, carts, horses, and their drivers, to do the same business that is done in New-York, where all the produce of the country is brought to market by water, with much less show and parade.

The river St. Lawrence divides this state from Canada. It rises in Lake Ontario, runs north-eastward—embosoms Montreal, which stands upon an island—passes by Quebec, and empties, by a broad mouth, into the bay of St. Lawrence. Among a variety of fish in this river are salmon. They are found as far up as the falls of Niagara, which they cannot pass.

The settlements already made in this state, are chiefly upon two narrow oblongs, extending from the city of New-York, east and north. The one east, is Long-Island, which is 140 miles, long and narrow, and surrounded by the sea. The one extending north is about forty miles in breadth, and bisected by the Hudson. And such is the intersection of the whole state, by the branches of the Hudson, the Delaware, the Schuylkill, and other rivers which have been mentioned, that there are few places, throughout its whole extent, that are more than fifteen or twenty miles from some boatable or navigable stream.

York bay, which is nine miles long and four broad, spreads to the southward before the city of New-York. It is formed by the confluence of the East and Hudson's rivers, and embosoms several small islands, of which Governor's Island is the principal. It communicates with the ocean through the *Narrows*, between Staten and Long-Islands, which are scarcely two miles wide. The passage up to New-York, from Sandy-Hook, the point of land that extends farthest into the sea, is safe, and not above twenty miles in length.

On the north side of the mountains, in Orange county, is a very valuable tract, called the *Drowned Lands*, containing about 40 or 50,000 acres. The waters, which descend from the surrounding hills, being but slowly discharged by the river issuing from it, cover these vast meadows every winter, and render them extremely fertile; but they expose the inhabitants in the vicinity to intermittents. The Wallkill river, which passes through this extensive tract, and empties into Hudson's river, is, in the spring, stored with very large eels in great plenty. The bottom of this river is a broken rock; and it is supposed, that for £2000, the channel might be deepened so as to let off all the waters from the meadows, and thereby redeem from the floods a large tract of rich land, for grass, hemp, and Indian corn.

The state, to speak generally, is intersected by ridges of mountains running in a north-east and south-west direction. Beyond the Alleghany mountains, however, the country is a dead level, of a fine rich soil, covered in it's natural state, with maple, beech, birch, cherry, black walnut, locust, hickory, and some mulberry trees. On the banks of Lake Erie, are a few chestnut and oak ridges. Hemlock swamps are interspersed thinly through the country. All the creeks that empty into Lake Erie, have falls, which afford many excellent mill-seats.

East of the Alleghany mountains, the country is broken into hills with rich intervening valleys. The hills are clothed thick with timber, and when cleared afford fine pasture—the valleys, when cultivated, produce wheat, hemp, flax, peas, grass, oats, and Indian corn.

Besides the trees already mentioned, there are, in various parts of the state, the several kinds of oak, such as white, red, yellow, black and chestnut oak; white, yellow, spruce, and pitch pines; cedar, balsam, or fir-tree, butter-nut, aspin, commonly called poplar, white wood, which in Pennsylvania is called poplar, and in Europe, the tulip-tree, sugar and rock maple, the linden tree, which, with the whitewood, grows on the low rich ground, the buttonwood or sycamore, shrub cranberry, the fruit of which hangs in clusters like grapes, as large as cherries; this shrub, too, grows on low ground. Besides these is the sumach, which bears clusters of red berries; the Indians chew the leaves instead of tobacco; the berries are used in dyes. Of the commodities produced from culture, wheat is the staple, of which immense quantities are raised, and exported. Indian corn and peas are raised for exportation; and rye, oats, barley, &c. for home consumption.

In some parts of the state, large dairies are kept, which furnish for the market butter and cheese. The best lands in this state, which lie along the Mohawks river, and west of the Alleghany mountains, are yet in a state of nature, or are just beginning to be settled.

The exports to the West-Indies are, biscuit, peas, Indian corn, apples, onions, boards, staves, horses, sheep, butter, cheese, pickled oysters, beef, and pork. But wheat is the staple commodity of the state, of which no less than 677,700 bushels were exported in the year 1775, besides 2555 tons of bread, and 2828 tons of flour.

West-India goods are received in return for these articles. Besides the above-mentioned articles, are exported flax-seed, cotton-wool, sarsaparilla,

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The large range of Allegany mountains commences with the Katts Kill mountain upon Hudson's river. This range spreads through this state, in a north-east and south-west direction, in several distinct ridges, with different names.

The few societies for promoting knowledge or humanity in this state are in the city of New-York. These are "The Society for promoting Useful Knowledge," "The Society for the Manumission of Slaves, and protecting such of them as have been, or may be, liberated;" and, the "Philological Society," the principal object of which is, the improvement of the English language.

Columbia college has between thirty and forty students, in four classes. The number for several years has been increasing. The officers of instruction and immediate government are, a president, professor of languages, professor of mathematics, professor of logic and rhetoric, professor of natural philosophy, professor of geography, and a professor of moral philosophy. There are many other professors belonging to the university, but their professorships are merely honorary.

439. *New-Jersey.*] The state of New-Jersey is 160 miles in length, and 52 in breadth. It is bounded on the east by Hudson's River and the sea; on the south by the sea; on the west by Delaware Bay and River, which divide it from the states of Delaware and Pennsylvania; and on the north, by a line drawn from the mouth of Mahakkamak River, in lat. 41 deg. 24 min. to a point in Hudson's River, in lat. 41 deg. Containing about 8320 square miles, equal to 5,324,800 acres.

New-Jersey is washed on the east and south-east by Hudson's River and the ocean; and on the west by the river Delaware.

The most remarkable bays are, Arthur Kull, or Newark Bay, formed by the union of Posaik and Hakkensak rivers. This bay opens to the right and left, and embraces Staten-Island. There is a long bay, formed by a beach, four or five miles from the shore, extending along the coast north-east and south-west, from Manasquand river, in Monmouth county, almost to Cape May. Through this beach are a number of inlets, by which the bay communicates with the ocean.

Since the peace of 1783, great numbers of the inhabitants have emigrated to the country, west of the Allegany Mountains. The increase of inhabitants in the state must be small, so long as these emigrations shall continue; and they will probably continue as long as there are unsettled lands within the limits of the United States, on which emigrants can more easily subsist by agriculture, than in their native state.

The counties of Suffex, Morris, and the northern part of Bergen, are mountainous. The South Mountain, which is one ridge of the

great Allegany range, crosses this state in about latitude 41 deg. This mountain embosoms such amazing quantities of iron ore, that it may not improperly be called the *Iron Mountain*. The Kittatinny ridge passes through this state north of the South mountain. Several spurs, from these mountains, are projected in a southern direction. One passes between Springfield and Chatham. Another runs west of it, by Morristown, Baskinridge, and Vealtown. The interior country is, in general, agreeably variegated with hills and valleys. The southern countries, which lie along the sea-coast, are pretty uniformly flat and sandy. The noted Highlands of Navesink and Center Hill, are almost the only hills within the distance of many miles from the sea-coast. The Highlands of Navesink are on the sea-coast near Sandy-Hook, in the township of Middletown, and are the first lands that are discovered by mariners as they come upon the coast. They rise about 600 feet above the surface of the water.

As much as five-eighths of most of the southern counties, or one-fourth of the whole state, is a sandy barren, unfit for cultivation. The land on the sea coast in this, like that in the more southern states, has every appearance of made ground. The soil is generally a light sand; and by digging, on an average, about fifty feet below the surface, (which can be done, even at the distance of twenty or thirty miles from the sea, without any impediment from rocks or stones) they come to salt marsh.

This state has all the varieties of soil, from the worst to the best kind. It has a greater proportion of barrens than any of the states, if we except North-Carolina; and even than this, if we include the premature state of Franklin. The good land in the southern counties lies principally on the banks of the rivers and creeks. The soil, on these banks, is generally a stiff clay; and while in a state of nature, produces various species of oak, hickory, poplar, chestnut, ash, gum, &c. The barrens produce little else but shrub oaks, and white and yellow pines. There are large bodies of salt meadow along the Delaware, which afford a plentiful pasture for cattle in summer, and hay in winter: but the flies and musketoes frequent these meadows in large swarms in summer, and prove very troublesome both to man and beast. In Gloucester and Cumberland counties are several large tracts of banked meadow. Their vicinity to Philadelphia renders them highly valuable. Along the sea-coast the inhabitants subsist principally by feeding cattle on the salt meadows, and by the fish of various kinds, such as rock, drum, shad, perch, &c. black turtle, crabs, and oysters, which the sea, rivers, and creeks afford in great abundance. They raise Indian corn, rye, potatoes, &c. but not for exportation. Their swamps afford lumber, which is easily conveyed to a good market,

In the hilly and mountainous parts of the state, which are not too rocky for cultivation, the soil is of a stronger kind, and covered in it's natural state with stately oaks, hickories, chestnuts, &c. &c. and when cultivated produces wheat, rye, Indian corn, buck-wheat, oats, barley, flax, and fruits of all kinds common to the climate. The land in this

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hilly country is good for grazing, and the farmers feed great numbers of cattle for New-York and Philadelphia markets; and many of them keep large dairies.

The orchards in many parts of the state equal any in the United States, and their cyder is said, and not without reason, to be the best in the world. It is pretty certain that it cannot be surpassed in goodness. It is only to be regretted that too many of the inhabitants make too free an use of it, to the injury not only of their healths, but of their reputations; and that the pernicious practice of distilling it, and thereby rendering it still more prejudicial, is prevailing.

The markets of New-York and Philadelphia receive a very considerable proportion of their supplies from the contiguous parts of New-Jersey. And it is worthy of remark, that these contiguous parts are exceedingly well calculated, as to the nature and fertility of their soils, to afford these supplies; and the intervention of a great number of navigable rivers and creeks renders it very convenient to market their produce. These supplies consist of vegetables of many kinds, apples, pears, peaches, plumbs, strawberries, and other fruits—cyder in large quantities, and of the best quality, butter, cheese, beef, pork, mutton, and the lesser meats.

The trade of this state is carried on almost solely with, and from those two great commercial cities, New-York on one side, and Philadelphia on the other; though it wants not good ports of its own. Several attempts have been made by the legislature, to secure to the state its own natural advantages, by granting extraordinary privileges to merchants, who would settle at Amboy and Burlington, two very commodious ports. But the people having long been accustomed to send their produce to the markets of Philadelphia and New-York, and of course having their correspondencies established, and their mode of dealing fixed, they find it difficult to turn their trade from the old channel.

The articles exported, besides those already mentioned, are wheat, flour, horses, live cattle, hams, which are celebrated as being the best in the world, lumber, flax-feed, leather, iron in great quantities, in pigs and bars, and formerly copper ore was reckoned among their most valuable exports; but the mines have not been worked since the commencement of the late war.

The imports consist chiefly of dry and West India goods, and teas from the East Indies.

The manufactures of this state have hitherto been very inconsiderable, not sufficient to supply its own consumption, if we except the articles of iron, nails, and leather. A spirit of industry and improvement, particularly in manufactures, has, however, greatly increased in the two last years.

340. *Pennsylvania.*] The state of Pennsylvania is 288 miles in length, and 156 in breadth. It is bounded east, by Delaware river; north, by the parallel of 42 deg. north latitude, which divides it from the state of New-York; south, by the parallel of 39 deg. 43 min. 18 sec. north latitude, which divides it from the states of Delaware, Maryland,

Maryland and Virginia west, by a meridian line, drawn from the termination of five degrees of longitude, from a point on Delaware river, near Wilmington, in the parallel of 39 deg. 43 min. 18 sec. to intersect the parallel of 42 deg. This line divides the state from a part of Virginia, the Western Territory, (so called) and from a tract of land, 20 miles square, which was confirmed to Connecticut by congress. The north-west corner of Pennsylvania, extends about one mile and an half into Lake Erie, and is about twenty miles west of the old French fort, at Presque Isle. The state lies in the form of a parallelogram, and contains about 44,900 square miles, equal to about 28,800,000 acres.

There are six considerable rivers, which, with their numerous branches, peninsulate the whole state, viz. the Delaware, Schuylkill, Susquehannah, Yohoganey, Monongahela, and Allegany.

As much as nearly one-third of this state may be called mountainous; particularly the counties of Bedford, Huntingdon, Cumberland, part of Franklin, Dauphin, and part of Bucks and Northampton, through which pass, under various names, the numerous ridges and spurs, which collectively form the great range of Allegany Mountains.

Excepting the Allegany range of mountains, which crosses the state in an oblique direction, and is from twenty to fifty miles wide, the state is generally level, or agreeably diversified with gentle hills and vales. The soil is of various kinds; in some parts it is barren; a great proportion of the state is good land; and a considerable part is very good. Perhaps the proportion of first rate land is not greater in any of the thirteen states. The richest part of the state, that is settled, is Lancaster county. The richest, that is unsettled, is between Allegany river and Lake Erie, in the north-west corner of the state. Of this fine tract, 100,000 acres, lying on, and near French Creek, are for sale by the state. The convenient communications through this creek into the Allegany, and from the Allegany, through various creeks and rivers to the Susquehannah and Patomak, have already been mentioned.

The north side of Pennsylvania is the richest and the best settled land throughout, owing to the circumstance of the western road having been run, prior to 1762, through the towns of Lancaster, Carlisle, and Bedford, and thence to Pittsburg. For the purpose of turning the tide of settlers from this old channel, into the unsettled and more fertile parts of the state, the government and landed interest of Pennsylvania have been, and are still busy in cutting convenient roads. During the summer of 1788, they ran a road north, from the former roads beyond Bethlehem, to the north portage between Delaware and Susquehannah; and thence north eighty degrees west to the mouth of the Tyoga; the first, seventy miles; and the last, above sixty. It is now in contemplation to cut a road from Sunbury, at the forks of the east and west branches of Susquehannah, west, 150 miles, to the mouth of Toby's creek, which empties into the Allegany river, from the east. This road will be through a tract of rich land, now for sale by the state. A road is also cutting from the mouth of the Tyoga, southward, to the mouth of Loyal, a branch of the west branch of Susquehannah,

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hannah. Another road is cutting from Huntingdon-town, or Franks-town branch of the Juniatta, westward thirty miles, to a navigable branch of the Allegany.

Thus the well-judged policy of this state, is paving the way for the settlement of all their waste lands. And to evidence their benevolence, and their wishes to have the advantages of education increased, and more extensively enjoyed, they have allotted 60,000 acres of these waste lands for the use of public schools; and above 60,000 more have been granted for that purpose, and to the societies established for the promotion of knowledge, the arts, religion, &c.

In addition to the common observation, that the natural growth of this state is similar to that of New-Jersey and New-York, which is indeed the case in most respects, it may be said, that there are in Pennsylvania great bodies of sugar-maple, particularly in the counties of Northampton, Luzerne, Northumberland, and Washington, which yield a well-tasted and wholesome sugar, to profit.

Cumberland and Franklin valley is timbered principally with locust, black walnut, hickory, and white oak. The mountainous parts are covered with pines, chestnuts, &c.

The produce from culture consists of wheat, which is the staple commodity of the state, some rye, Indian corn, buck-wheat, oats, speltz, barley, which is now raised in greater quantities than formerly, occasioned by the vast consumption of it by the breweries in Philadelphia, hemp, flax, and vegetables of all the various kinds common to the climate. Pennsylvania is a good grazing country, and great numbers of cattle are fed, and large dairies are kept; but their beef, pork, and cheese, are not reckoned so good as those of Connecticut and the other parts of New-England; but their butter has been supposed to be superior.

On the west side of the mountains, the weather is pretty regular. The inhabitants never feel those quick transitions from cold to heat, by a change of the wind from north to south, as those so frequently experience, who live eastward of the mountains, and near the sea. The hot southwardly winds get chilled by passing over the long chain of Allegany mountains.

It has been observed that Pennsylvania is now more unhealthy than formerly; that bilious and remitting fevers, which a few years ago appeared chiefly in the neighbourhood of rivers, creeks, and mill-ponds, now appear in parts remote from them all, and in the highest situations. This change has been attributed to the increase of mill-ponds; till these were established, intermittents, in several counties in Pennsylvania, were unknown: and to the clearing of the country. It has been remarked, that intermittents on the shores of the Susquehannah have kept an exact pace with the passages which have been opened to the propagation of marsh effluvia, by cutting down the wood which formerly grew in it's neighbourhood. A distinction, however, is to be made between clearing and cultivating a country. While clearing a country makes it sickly, in the manner that has been mentioned, cultivating a country, that is, draining swamps, destroying weeds, burning brush, and exhaling the unwholesome and superfluous moisture

ture of the earth, by means of frequent crops of grain, grasses, and vegetables of all kinds, render it healthy. Several parts of the United States have pressed through the several stages that have been described. The first settlers received their country in a state of nature, pure and healthy. Fevers soon followed their improvements; nor were they finally banished, until the higher degrees of cultivation took place. Nor even then, where the salutary effects of cultivation were rendered abortive by the neighbourhood of mill ponds.

It may be added, on this subject, that the emigrants from Pennsylvania generally travel to the southward. The soil and climate of the western parts of Virginia, North and South Carolina, and Georgia, afford a more easy support to indolent farmers, than the stubborn but durable soil of Pennsylvania. Here the ground requires deep and repeated ploughing, to render it fruitful; there scratching once or twice affords tolerable crops. In Pennsylvania, the length and coldness of the winter make it necessary for the farmers to bestow a large share of their labour in providing for, and feeding their cattle; but in the southern states, cattle find pasture during the greatest part of the winter in the fields or woods.

The Literary, Humane, and other useful societies, are more numerous and flourishing in Pennsylvania, than in any other of the states.

441. *Delaware.*] The state of Delaware is 92 miles in length, and 16 in breadth. It is bounded on the north, by the territorial line, (which is a circle described with a radius of 12 English miles, and whose centre is in the middle of the town of Newcastle,) which divides it from Pennsylvania; on the east, by Delaware river, and bay; on the south, by a due east and west line, from Cape Henlopen, in lat. 38 deg. 30 min. to the middle of the peninsula, which line divides the state from Worcester county in Maryland; and on the west, by Maryland, from which it is divided by a line drawn from the western termination of the southern boundary line, northwards up the said peninsula, till it touch or form a tangent to the western part of the periphery of the above-mentioned territorial circle: containing about 1400 square miles.

In many parts the climate is unhealthy. The land is generally low and flat, which occasions the waters to stagnate, and the consequence is, that the inhabitants are subject to intermittents.

The rivers Choptank, Nanticoke, and Pocomoke, all have their sources in this state, and are navigable for vessels of 50 or 60 tons, 20 or 30 miles into the country. They all run a westwardly course into Chesapeak bay. The eastern side of the state, along Delaware bay and river, is indented with a great number of small creeks, but none considerable enough to merit a description.

The south part of the state is a low flat country, and a considerable portion of it lies in forest. What is under cultivation is chiefly barren, except in Indian corn, of which it produces fine crops. In some places, rye and flax may be raised, but wheat is a foreigner in these parts. Thick forests of pines are manufactured into boards here, and exported in large quantities into every sea-port in the three adjoining states. The soil is more fertile in the north, and produces wheat in

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large quantities, which is the staple commodity of the state, and they raise all the other kinds of grain common to Pennsylvania. The state has no mountain in it, except Thunder Hill, in the western part of Newcastle county, and is generally level, except some small parts, which are stony and uneven.

442. *Maryland.*] The state of Maryland is 134 miles in length and 110 in breadth. It is bounded on the north by Pennsylvania; on the east, by the Delaware State; on the south-east and south, by the Atlantic Ocean, and a line drawn from the ocean over the peninsula (dividing it from Accomac county in Virginia) to the mouth of Patomak river; thence up the Patomak to its first fountain; thence, by a due north line, till it intersects the southern boundary of Pennsylvania, in lat. 39 deg. 43 min. 18 sec. so that it has Virginia on the south, south-west, and west. It contains about 14,000 square miles, of which about one-sixth is water.

The climate is generally mild and agreeable, suited to agricultural productions; and here is a great variety of fruit trees. In the interior hilly country the inhabitants are healthy; but in the flat country, in the neighbourhood of the marshes and stagnant waters, they are, as in the other southern states, subject to intermittents.

Chesapeak Bay divides this state into the eastern and western divisions. This bay, which is the largest in the United States, affords several good fisheries; and, in a commercial view, is of immense advantage to the state. It receives a number of the largest rivers in the United States. From the eastern shore in Maryland, among other smaller ones, it receives Pocomoke, Choptank, Chester, and Elk, rivers. From the north, the rapid Susquehannah; and from the west, Patapsco, Severn, Patuxent, and Patomak, half of which is in Maryland, and half in Virginia. Except the Susquehannah and Patomak, these are small rivers. Patapsco river is but about 30 or 40 yards wide at the ferry, just before it empties into the basin upon which Baltimore stands. Its source is in York county, in Pennsylvania, and its course is southwardly, till it reaches Elkridge landing, about 8 miles westward of Baltimore; it then turns eastward, in a broad bay-like stream, by Baltimore, which it leaves on the north, and passes into the Chesapeak.

The Severn is a short, inconsiderable river, passing by Annapolis, which it leaves to the south, emptying, by a broad mouth, into the Chesapeak-Bay.

The Patuxent is a larger river than the Patapsco. It rises in Ann Arundel county, and runs south-eastwardly, and then east into the bay, 15 or 20 miles north of the mouth of Patomak. There are several small rivers, such as Wighcocomico, Eastern Branch, Monocacy, and Conegocheague, which empty into Patomak river, from the Maryland side.

East of the blue ridge of mountains, which stretches across the western part of this state, the land, like that in all the southern states, is generally level and free of stones, and appears to have been produced much in the same way; of course the soil must be similar, and the natural growth not noticeably different.

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The soil of the good land in Maryland, is of such a nature and quality as to produce from 12 to 16 bushels of wheat ; or from 20 to 30 bushels of Indian corn, per acre. Ten bushels of wheat, and 15 bushels of corn per acre, may be the annual average crops in the state at large.

Wheat and tobacco are the staple commodities of Maryland, and in the interior country, on the uplands, considerable quantities of hemp and flax are raised.

Among other kinds of timber, is the oak of several kinds, which is of a straight grain, and easily rives into staves, for exportation. The black walnut is in demand for cabinets, tables, and other furniture. The apples of this state are large, but mealy ; their peaches plentiful and good. From these the inhabitants distil cyder brandy, and peach brandy.

The forests abound with nuts of various kinds, which are collectively called mast. On this mast vast numbers of swine are fed, which run wild in the woods. These swine, when fatted, are caught, killed, barrelled and exported in great quantities.

Mines of iron ore, of a superior quality, are found in many parts of the state. Furnaces for running this ore into pigs and hollow ware, and forges to refine pig iron into bars, have been erected in a number of places in the neighbourhood of the mines. This is the only manufacture of importance, carried on in the state, except it be that of wheat into flour.

The trade of Maryland is principally carried on from Baltimore with the other states, with the West Indies, and with some parts of Europe. To these places they send annually about 30,000 hogsheads of tobacco, besides large quantities of wheat, flour, pig iron, lumber and corn, beans, pork, and flax-seed in smaller quantities ; and receive in return clothing and other dry goods, wines, spirits, sugars, and other West India commodities. The balance of trade is generally in their favour.

443. *Virginia.*] The state of Virginia is 758 miles in length, and 224 in breadth. It is bounded on the east, by the Atlantic Ocean ; on the north, by Pennsylvania and the river Ohio ; on the west, by the Mississippi ; and on the south, by North-Carolina.

The state is intersected by long and large rivers, in a way very favourable to navigation. Patomak is $7\frac{1}{2}$ miles wide at the mouth ; $4\frac{1}{2}$ at Nomony Bay ; 3 at Aquia ; $1\frac{1}{2}$ at Hallooing Point ; $1\frac{1}{4}$ at Alexandria. It's soundings are 7 fathoms at the mouth ; 5 at St. George's island ; $4\frac{1}{2}$ at Lower Matchodic ; 3 at Swan's Point, and thence up to Alexandria ; thence 10 feet water to the falls, which are 13 miles above Alexandria.

The distance from the Capes of Virginia to the termination of the tide-water in this river is above 300 miles, and navigable for ships of the greatest burthen, nearly to that place.

The mountains commence at about 150 miles from the sea coast, and are disposed in ridges one behind another, running nearly parallel with the sea coast, though rather approaching it, as they advance north-eastwardly. To the south-west, as the tract of country between the
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sea coast and the Mississippi becomes narrower, the mountains converge into a single ridge, which, as it approaches the Gulf of Mexico, subsides into plain country, and gives rise to some of the waters of that Gulf, and particularly to a river called the Apalachicola, probably from the Apalachies, an Indian nation formerly residing on it. Hence the mountains giving rise to that river, and seen from its various parts, were called the Apalachian Mountains, being in fact the end, or termination only, of the great ridges passing through the continent.

In the western county, we are told of iron mines between the Muskingum and Ohio; of others on Kentucky, between the Cumberland and Barren rivers, between Cumberland and Tennessee, on Reedy creek, near the Long Island, and on Chesnut creek, a branch of the Great Kanaway, near where it crosses the Carolina line.

Considerable quantities of black lead are taken occasionally for use from Winterham, in the county of Amelia. There is no work established at it, those who want, going and procuring it for themselves.

The country on James river, from 15 to 20 miles above Richmond, and for several miles northward and southward, is replete with mineral coal of a very excellent quality. Being in the hands of many proprietors, pits have been opened, and, before the interruption of commerce, were worked to an extent equal to the demand.

In the western country, coal is known to be in so many places, as to have induced an opinion, that the whole tract between the Laurel Mountain, Mississippi, and Ohio, yields coal. It is also known in many places on the north side of the Ohio. The coal at Pittsburg is of a very superior quality. A bed of it at that place has been on fire since the year 1765. Another coal hill on the Pike Run of Monongahela has been on fire ten years: yet it has burnt away about 20 yards only.

In an extensive country, it will be expected that the climate is not the same in all its parts. It is remarkable that, proceeding on the same parallel of latitude westwardly, the climate becomes colder in like manner as when we proceed northwardly. This continues to be the case, till we attain the summit of the Allegany, which is the highest land between the ocean and the Mississippi. From thence descending in the same latitude to the Mississippi, the change reverses; and it becomes warmer there than it is in the same latitude on the sea side. Vegetables and animals subsist and multiply there naturally, which do not on the sea coast. Thus catalpas grow spontaneously on the Mississippi, as far as the latitude of 37 deg. and reeds as far as 38 deg. Parroquets even winter on the Sioto, in the 39th degree of latitude. In the summer of 1779, when the thermometer was at 90 deg. at Monticello, and 96 deg. at Williamsburg, it was 110 deg. at Kaskaskia. It is thought that the mountain, which overhangs this village on the north side, may, by its reflection, have contributed somewhat to produce this heat.

444. *Kentucky.*] Kentucky is 250 miles in length, and 200 in breadth. It is bounded on the north-west by the river Ohio; on the west by Cumberland river; on the south, by North Carolina; and on the

the east, by Sandy river; and a line drawn due south from it's source, till it strikes the northern boundary of North Carolina.

The river Ohio washes the north-west side of the Kentucky, in it's whole extent. It's principal branches, which water this fertile tract of country, are Sandy, Licking, Kentucky, Salt, Green, and Cumberland rivers. These again branch, in various directions, into rivulets of different magnitudes, fertilizing the country in all it's parts. At the bottom of these water-courses, the limestone-rock, which is common to this country, appears of a greyish colour; and where it lies exposed to the air, in it's natural state, it looks like brown free-stone. On the banks of these rivers and rivulets, this stone has the appearance of fine marble, being of the same texture, and it is found in the greatest plenty.

A tract of about 20 miles wide, along the banks of the Ohio, is hilly, broken land, interspersed with many fertile spots. The rest of the country is agreeably uneven, gently ascending and descending at no great distances.

The accounts of the fertility of the soil in this country have, in some instances, exceeded belief; and probably have been exaggerated.

That some parts of Kentucky, particularly the high grounds, are remarkably good, all accounts agree. The lands of the first rate are too rich for wheat, and will produce 50 and 60, and in some instances, it is affirmed, 100 bushels of good corn, an acre. In common, the land will produce 30 bushels of wheat or rye an acre. Barley, oats, cotton, flax, hemp, and vegetables of all kinds, common in this climate, yield abundantly. The old Virginia planters say, that if the climate does not prove too moist, few soils known will yield more and better tobacco.

Here is plenty of buffalo and catfish of uncommon size, salmon, mullet, rock, perch, garfish, eel, suckers, sunfish, &c. Trout, shad, and herrings have not been caught in the western waters.

Swamps are rare in Kentucky; and of course, the reptiles, which they produce, such as snakes, frogs, &c. are not numerous. The honey-bee may be called a domestic insect, as it is not found but in civilized countries. This is confirmed by a saying which is said to be common among the Indians, when they see a swarm of bees in the woods, "Well, brothers, it is time for us to decamp, for the white people are coming."

The quadrupeds, except the buffalo, are the same as in Virginia and Carolinas.

The climate is healthy, some few places, in the neighbourhood of ponds and low grounds, excepted. The inhabitants do not experience the extremes of heat and cold. Snow seldom falls deep, or lies long. The winter is never longer than three months, and is commonly but two, and is so mild, generally, that cattle can subsist without fodder.

The progress in improvements and cultivation which has been made in this country, almost exceeds belief. Eleven years ago, Kentucky lay in forest, almost uninhabited but by wild beasts. Now, it exhibits an extensive settlement, divided into seven large and populous counties, in which are a number of flourishing little towns, containing more

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more inhabitants than are in Georgia, Delaware, or Rhode-Island states—and nearly or quite as many as in New-Hampshire. An instance of the like kind, where a settlement has had so large and rapid a growth, can scarcely be produced from the page of history.

445. *North-Carolina.*] The state of North-Carolina is 758 miles in length, and 110 in breadth. It is bounded on the north by Virginia; on the east by the Atlantic Ocean; on the south by South-Carolina and Georgia: and on the west by the Mississippi.

North-Carolina, in it's whole width, for 60 miles from the sea, is a dead level. A great proportion of this tract lies in forests, or is barren. On the banks of some of the rivers, particularly of the Roanoke, the land is fertile and good. Interspersed through the other parts are glades of rich swamp, and ridges of oak land, of a black, fertile soil. In all this champaign country, marine productions are found by digging 18 or 20 feet below the surface of the ground. The sea coast, the sounds, inlets, and lower parts of the rivers, have uniformly a muddy, soft bottom. Sixty and eighty miles from the sea, the country rises into hills and mountains, as in South-Carolina and Georgia.

That part of North-Carolina which lies west of the mountains, a tract about 500 miles in length, east and west, and upwards of 100 in breadth, (except the Cumberland Barrens, and some broken lands) is a fine fertile country, watered by the broad Tennessee, and abounds with oaks, locust-trees of several kinds, walnut, elm, linn, and cherry-trees; some of which are three feet in diameter.

Wheat, rye, barley, oats, and flax grow well in the back hilly country. Indian corn and pulse of all kinds in all parts. Ground peas run on the surface of the earth, and are covered by hand with a light mould, and the pods grow under ground. They are eaten raw or roasted, and taste much like a hazel-nut. Cotton is also considerably cultivated here, and might be raised in much greater plenty. It is planted yearly; the stalk dies with the frost.

A great proportion of the produce of the back country, consisting of tobacco, wheat, Indian corn, &c. is carried to market in South-Carolina and Virginia. The inhabitants of southern interior counties carry their produce to Charleston; and those of the northern to Petersburg, in Virginia. The exports from the lower parts of the state, are, tar, pitch, turpentine, rosin, Indian corn, boards, scantling, staves, shingles, furs, tobacco, pork, lard, tallow, bees-wax, myrtle-wax, and a few other articles. Their trade is chiefly with the West-Indies, and the northern states. From the latter they receive flour, cheese, cyder, apples, potatoes, iron wares, cabinet-wares, hats, and dry goods of all kinds imported from Great-Britain, France, and Holland, teas, &c. From the West-Indies, rum, sugar, and coffee.

In the flat country, near the sea-coast, the inhabitants, during the summer and autumn, are subject to intermitting fevers, which often prove mortal, as bilious or nervous symptoms prevail. These fevers are seldom immediately dangerous to the natives, who are temperate; or to strangers who are prudent. They, however, if suffered to continue for any length of time, bring on other disorders, which greatly impair

impair the natural vigour of the mind, debilitate the constitution, and terminate in death. The countenances of the inhabitants, during these seasons, have generally a pale yellowish cast, occasioned by the prevalence of bilious symptoms. They have very little of the bloom and freshness of the people in the northern states.

The western hilly parts of the state are as healthy as any of the United States. That country is fertile, full of springs, and rivulets of pure water. The air there is serene a great part of the year, and the inhabitants live to old age, which cannot so generally be said of the inhabitants of the flat country. Though the days in summer are extremely hot, the nights are cool and refreshing. Autumn is very pleasant, both in regard to the temperature and serenity of the weather, and the richness and variety of the vegetable productions which the season affords. The winters are so mild in some years, that autumn may be said to continue till spring.

The large natural growth of the plains in the low country, is almost universally pitch pine, which is a tall, handsome tree, far superior to the pitch pine of the northern states. This tree may be called the staple commodity of North-Carolina. It affords pitch, tar, turpentine, and various kinds of lumber, which, together, constitute, at least, one half of the exports of this state.

The mistletoe is common in the back country. This is a shrub which differs in kind, perhaps, from all others. It never grows out of the earth, but on the tops of trees. The roots, if they may be so called, run under the bark of the tree, and incorporate with the wood. It is an ever-green, resembling the garden box-wood.

The principal wild fruits are plums, grapes, strawberries, and blackberries.

The country is generally covered with herbage of various kinds, and a species of wild grass. It abounds with medicinal plants and roots. Among others are the ginseng. Virginia snake-root, Seneca snake-root, an herb of the emetic kind like the ippecacuanha. Lion's heart, which is a remedy for the bite of a serpent. A species of the sensitive plant is also found here: it is a sort of brier, the stalk of which dies with the frost, but the root lives through the winter, and shoots again in the spring: the slightest touch of a leaf causes it to turn and cling close to the stalk: but in the space of two minutes after it is touched, it perfectly recovers its former situation. The mucipula veneris is also found here. The rich bottoms are overgrown with canes; their leaves are green all the winter, and afford an excellent food for cattle: they are of a sweetish taste, like the stalks of green corn, which they in many respects resemble.

446. *South-Carolina.*] The state of South-Carolina is 200 miles in length, and 125 in breadth. It is bounded on the east by the Atlantic Ocean; on the north by North-Carolina; on the south-west and south by Savannah river, which divides it from Georgia. The western boundary has not yet, with accuracy, been ascertained.

The climate is different in different parts of the state. Along the sea coast, bilious diseases and fevers of all kinds are prevalent in summer.

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mer. One cause of these diseases is, a low, marshy country, which is overflowed for the sake of cultivating rice. The exhalations from these stagnated waters, from the rivers, and from the neighbouring ocean, and the profuse perspiration of vegetables of all kinds, which cover the ground, fill the air with moisture. This moisture falls in frequent rains, and copious dews. From actual observation it was found that the average annual fall of rain, for ten years, was 42 inches; without regarding the moisture that fell in fogs and dews. The great heat of the day relaxes the body, and the agreeable coolness of the evening invites to an exposure to these heavy dews. But a second, and probably a more operative cause in producing diseases, is the indolence of the inhabitants. On this, it is thought, more than on any unavoidable injurious qualities in the air, are chargeable the diseases so common in this country. The upper country, situated in the medium, between heat and cold, is as healthful as any part of the United States.

This state is watered by four large, navigable rivers, besides a great number of smaller ones, which are passable in boats.

The sea-coast is bordered with a chain of fine sea-islands, around which the sea flows, opening an excellent inland navigation for the conveyance of produce to market. The soil and natural growth of these islands are not noticeably different from the adjacent main land. They are in general favourable for the culture of indigo.

The whole state, to the distance of 80 miles from the sea, is nearly level, and almost without a stone. In this distance, by a gradual ascent from the sea-coast, the land rises about 190 feet. Here commences a curiously uneven country. The traveller, in passing along, is constantly ascending or descending little sand-hills. If a pretty high sea were suddenly arrested, and transformed into sand-hills, in the very form the waves existed at the moment of transformation, it would present the eye with just such a view as is here to be seen. Some little herbage and a few small pines grow even on this soil. The inhabitants are few, and have but a scanty subsistence on corn and sweet potatoes, which grow here tolerably well. This curious country continues for 60 miles to *The Ridge*, 140 miles from Charleston. This ridge is a remarkable tract of high ground, as it is approached from the sea; but level, as we advance north-west from it's summit. It is a fine, high, healthy belt of land, well watered, and of a good soil, and extends from the Savannah to Broad River. Beyond this ridge, commences a country exactly resembling the northern states. Here hills and dales, with all their verdure and variegated beauty, present themselves to the eye. Wheat fields, which are rare in the low country, begin to grow common. The air is much more temperate and healthful than nearer to the sea. The hills are covered with valuable woods—the valleys watered with beautiful rivers, and the fertility of the soil is equal to every vegetable production. This, by way of distinction, is called the upper country, where are different modes and different articles of cultivation; where the manners of the people, and even their language, have a different tone. The land still rises by a gradual ascent; each succeeding hill overlooks that which immediately precedes it, till, having advanced 220 miles in a north-west direction from

Charleston; the elevation of the land above the sea-coast is found by mensuration to be about 800 feet. Here commences a mountainous country, which continues rising to the western terminating point of this state.

The soil may be divided into four kinds, first, the *Pine-barren*, which is valuable only for it's timber. Interspersed among the pine-barren, are tracts of land free of timber, and of every kind of growth but that of grass. These tracts are called *Savannas*, constituting a second kind of soil, good for grazing. The third kind is that of the *swamps* and *low grounds* on the rivers, which is a mixture of black loam and fat clay, producing naturally canes in great plenty, cypress, bays, &c. In these swamps rice is cultivated, which constitutes the staple commodity of the state. The *high-lands*, commonly known by the name of oak and hiccory lands, constitute the fourth kind of soil. The natural growth is oak, hiccory, walnut, pine, and locust. On these lands, in the low country, are cultivated, Indian corn, principally; and in the back country, they raise tobacco in large quantities, wheat, rye, barley, oats, hemp, flax, cotton, and silk.

At the distance of about 110 miles from the sea, the river swamps for the culture of rice terminate, and the high lands extend quite to the rivers, and form banks in some places, several hundred feet high from the surface of the water, and afford many extensive and beautiful views. These high banks are interwoven with layers of leaves and different-coloured earth, and abound with quarries of free-stone, pebbles, flint, crystals, iron ore in abundance, silver, lead, sulphur, and coarse diamonds.

The literature of the state is at a low ebb. Since the peace, however, it has begun to flourish. There are several flourishing academies in Charleston—one at Beaufort, on Port-Royal Island—and several others in different parts of the state.

447. *Georgia.*] The state of Georgia is 600 miles in length and 250 in breadth. It is bounded on the east by the Atlantic Ocean; on the south by East and West Floridas; on the west by the river Mississippi; and on the north and north-east by South-Carolina, and by lands ceded to the United States by South-Carolina.

Savannah river forms a part of the divisional line, which separates this state from South-Carolina. It's course is nearly from north-west to south-east. It is formed principally of two branches, by the names of Tugulo and Keowee, which spring from the mountains.

In some parts of this state, at particular seasons of the year, the climate cannot be esteemed salubrious. In the low country, near the rice swamps, bilious complaints and fevers of various kinds are pretty universal during the latter part of summer.

The disorders peculiar to this climate, originate chiefly from the badness of the water, which is generally brackish, and from the noxious vapours which are exhaled from stagnant waters in the rice swamps. Besides, the long continuance of warm weather produces a general relaxation of the nervous system, and as they have no necessary labour to call them to exercise, a large share of indolence is the natural consequence;

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sequence: and indolence, especially among a luxurious people, is ever the parent of disease, and the immense quantities of spirituous liquors, which are used to correct the brackishness of the water, form a species of intemperance, which often proves ruinous to the constitution.

Before the sickly season commences, many of the rich planters of this state remove with their families to the sea islands, or some elevated healthy situation, where they reside three or four months, for the benefit of fresh air. In the winter and spring pleurifies, peripneumonies, and other inflammatory disorders, occasioned by sudden and violent colds, are sometimes common, and frequently mortal. Consumptions, epilepsies, cancers, palsies, and apoplexies, are not so incident to the inhabitants of the southern as northern climates.

The winters in Georgia are generally very mild and pleasant. Snow is seldom or ever seen. Vegetation is not frequently prevented by severe frosts. Cattle subsist tolerably well through the winter, without any other food than what they obtain in the woods and savannas, and are fatter in that season than in any other. In the hilly country, which begins about 80 or 100 miles from the sea, the air is pure and salubrious, and the water plenty and good. In the flat country there is here and there a spring only, which is clear and pretty good. Neither is the air so pure here as in the hilly country, being more confined, and less subject to agitations from the winds, and withal impregnated with putrid vapours from the rice swamps.

In the south-east parts of this state, which lie within a few degrees of the torrid zone, the atmosphere is kept in motion by impressions from the trade winds. This serves to purify the air, and renders it fit for respiration; so that it is found to have a very advantageous effect on persons of consumptive habits.

The eastern part of the state, between the mountains and the ocean, and the rivers Savannah and St. Mary's, a tract of country more than 120 miles from north to south, and 40 or 50 east and west, is generally level, without hill or stone. At the distance of about 40 or 50 miles from the sea-board or salt-march, the lands begin to be more or less uneven. The ridges gradually rise one above another into hills, and the hills successively increasing in height, till they finally terminate in mountains. That vast chain of mountains which commences with Katt's Hill, near Hudson's river, in the state of New-York, known by the names of the Allegany and Apalachian mountains, terminate in this state, about 60 miles south of it's northern boundary.—From the foot of this mountain spreads a wide extended plain, of the richest soil, and in a latitude and climate favourably adapted to the cultivation of most of the East-India productions.

The soil and it's fertility are various, according to situation and different improvement. The islands on the sea-board, in their natural state, are covered with a plentiful growth of pine, oak, and hiccory, live oak, and some red cedar. The soil is a mixture of sand and black mould, making what is commonly called a grey soil. A considerable part of it, particularly that whereon grow the oak, hiccory, and live oak, is

very fertile, and yields on cultivation good crops of indigo, corn, and potatoes. These islands are surrounded by navigable creeks, between which and the main land is a large extent of salt marsh, fronting the whole state, not less, on an average, than four or five miles in breadth, intersected with creeks in various directions, admitting, through the whole, an inland navigation between the islands and main-land, from the north-eastward to the south-eastward corners of the state. The soil of the main-land, adjoining the marshes and creeks, is nearly of the same quality with that of the islands; except that which borders on those rivers and creeks which stretch far back into the country. On these, immediately after the salts, begin the valuable rice swamps, which, on cultivation, afford the present principal staple of commerce. The most of the rice lands lie on rivers, which, as far as the tide flows, are called tide lands, or on creeks and particular branches of water, flowing in some deeper or lower parts of the lands, which are called inland swamps, and extend back in the country from 15 to 25 miles, beyond which very little rice is planted, though it will grow exceedingly well, as experiment has proved, 120 miles back from the sea. The intermediate lands, between these creeks and rivers, are of an inferior quality, being of a grey soil, covered chiefly with pine, and a sort of wild grass and small reeds, which afford a large range of feeding ground for cattle, both summer and winter. Here and there, are interspersed oak and hickory ridges, which are of a better soil, and produce good crops of corn, and also indigo; but these are very little elevated above the circumjacent lands. The lands adjoining the rivers are nearly level, and, for a hundred miles in a direct line from the sea, continue a breadth from 2 to 3 or 4 miles.

In this state are produced by culture, rice, indigo, cotton, silk, (though not in large quantities) Indian corn, potatoes, oranges, figs, pomegranates, &c. Rice, at present, is the staple commodity; and as a small proportion only of the rice ground is under cultivation, the quantity raised in future must be much greater than at present. But the rapid increase of the inhabitants, chiefly by emigrations, whose attention is turned to the raising of tobacco, and the vast extent of land, with a richness of soil suited to the culture of that plant, renders it probable, that tobacco will shortly become the staple of this state.

The tobacco lands are equally well adapted to wheat, which may hereafter make an important article of commerce.

On the dry plains, grow large crops of sweet potatoes, which are found to afford a wholesome nourishment, and from which is made, by distillation, a kind of whisky, tolerably good, but inferior to that made from rye. It is by properly macerating and washing this root, that a sediment or starch is made, which has obtained the name of sago, and answers all the purposes of the Indian sago.

Most of the tropical fruits would flourish in this state with proper attention. The rice plant has been, and the tea plant, of which such immense quantities are consumed in the United States, it is thought may be transplanted with equal advantage. The latitude, the soil, and the temperature of climate, all invite to make the experiment.

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From many considerations, it is thought, that the south-western part of this state, and the parts of East and West Florida, which lie adjoining, will, in a few years, become the vineyard of America.

The chief articles of export from this state are rice, tobacco, indigo, sago, lumber of various kinds, naval stores, leather, deer-skins, snake-root, myrtle, bees-wax, corn, live-stock, &c. The value of the exports from this state in 1772, was £,121,677 sterling. The number of vessels employed this year was 217, whose tonnage was 11,246.

In return for the numerated exports, are imported West India goods, teas, wines, various articles of clothing, and dry goods of all kinds.— From the northern state, cheese, fish, potatoes, apples, cyder, and shoes. The imports and exports of this state are to and from Savannah, which has a fine harbour, and is a place where the principal commercial business of the state is transacted. The manufactures of this state have hitherto been very inconsiderable, if we except indigo, silk, and sago. In 1766, 1084 lbs. of raw silk were exported. So large a quantity, however, has not been exported in any one year before or since. The culture of silk and the manufacture of sago, are at present but little attended to. The people in the lower part of this state manufacture scarcely any of their own clothing. For almost every article of their wearing apparel, as well as for their husbandry tools, they depend on their merchants, who import them from Great-Britain and the northern states. In the upper part of the country, however, the inhabitants manufacture the chief part of their clothing from cotton and from flax.

448. *Western Territory.*] Under this name is comprehended all that part of the United States which lies north-west of the Ohio. Bounded west by the Mississippi river; north, by the Lakes; east, by Pennsylvania; south-east and south, by the Ohio river; containing 411,000 square miles, equal to 263,040,000 acres; from which, if we deduct 43,040,000 acres for water, there will remain 220,000,000 of acres claimed by the federal government, to be sold for the discharge of the national debt; except a narrow strip of land, bordering on the south of Lake Erie, and stretching 120 miles west of the western limit of Pennsylvania, which belongs to Connecticut.

The *Muskingum* is a gentle river, confined by banks so high as to prevent it's overflowing. It is 250 yards wide at it's confluence with the Ohio, and navigable by large batteaux and barges to the Three Legs; and, by small ones, to the lake at it's head. From thence, by a portage of about one mile, a communication is opened to Lake Erie, through the Cayahoga, which is a stream of great utility, navigable the whole length, without any obstruction from falls. From Lake Erie the avenue is well known to the Hudson, in the state of New-York.

The *Hockhocking* resembles the Muskingum, though somewhat inferior in size. It is navigable for large boats about 70 miles, and for small ones much farther. On the banks of this very useful stream are found immense quarries of free-stone, large beds of iron ore, and some rich mines of lead. Coal mines and salt springs are frequent in

the neighbourhood of this stream, as they are in every part of the Western Territory. The salt that may be obtained from those springs will afford a store of that necessary article. Beds of white and blue clay, of an excellent quality, are likewise found here, suitable for the manufacture of glass, crockery, and other earthen wares. Red bole, and many other useful fossils have been observed on the branches of this river.

The *Sioto* is a larger river than either of the preceding, and opens a more extensive navigation. It is passable for large barges for 200 miles, with a portage of only four miles to the Sandusky, a good navigable stream, that falls into the Lake Erie. Through the Sandusky and Sioto lies the most common pass from Canada to the Ohio and Mississippi; one of the most extensive and useful communications that are to be found in any country. Prodigious extensions of territory are here connected; and, from the rapidity with which the western parts of Canada, Lake Erie, and the Kentucky counties are settling, we may anticipate an immense intercourse between them. The lands on the borders of these middle streams, from this circumstance alone, besides their natural fertility, must be rendered vastly valuable. There is no doubt, but flour, corn, flax, hemp, &c. raised for exportation in that great country between the Lakes Huron and Ontario, will find an easier outlet through Lake Erie and these rivers, than in any other direction. The Ohio merchant can give a higher price than those of Quebec, for these commodities; as they may be transported from the former to Florida and the West India Islands, with less expence, risk, and insurance, than from the latter; while the expence from the place of growth to the Ohio will not be one-fourth of what it would be to Quebec, and much less than even to the Oneida lake. The stream of Sioto is gentle, no where broken by falls; at some places, in the spring of the year, it overflows its banks, providing for large natural rice plantations. Salt springs, coal mines, white and blue clay, and free-stone, abound in the country adjoining this river.

The *Little Miami* is too small for batteaux navigation. Its banks are good land, and so high as to prevent, in common, the overflowing of the water.

The *Great Miami* has a very stony channel, and a swift stream, but no falls. It is formed of several large branches, which are passable for boats a great distance. One branch comes from the west, and rises in the Wabash country: another rises near the head waters of Miami river, which runs into Lake Erie; and a short portage divides another branch, from the west branch of Sandusky river.

The *Wabash* is a beautiful river, with high and fertile banks. It empties into the Ohio, by a mouth 270 yards wide, 1020 miles below Fort Pitt. In the spring, summer, and autumn, it is passable with batteaux drawing three feet water, 412 miles, to Ouitanon, a small French settlement, on the west side of the river; and for large canoes 197 miles further, to the Miami carrying place, 9 miles from Miami village. This village stands on Miami river, which empties into the south-west part of Lake Erie. The communication between Detroit and the Illinois and Ohio countries, is down Miami river to Miami

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village, thence, by land, 9 miles when the rivers are high—and from 18 to 30 when they are low, through a level country, to the Wabash, and through the various branches of the Wabash to the places of destination.

A silver mine has been discovered about 28 miles above Ouitanon, on the northern side of the Wabash. Salt springs, lime, free-stone, blue, yellow, and white clay are found in plenty upon this river.

The rivers *A Vase* and *Kaskaskias* empty into the Mississippi from the north-east: the former is navigable for boats 60, and the latter about 130 miles. They both run through a rich country, which has extensive meadows.

Between the Kaskaskias and Illinois rivers, which are 84 miles apart, is an extensive tract of level, rich land, which terminates in a high ridge, about 15 miles short of the Illinois river. In this delightful vale are a number of French villages, which, together with those of St. Genevieve and St. Louis, on the western side of the Mississippi, contained in 1771, 1273 active men.

One hundred and seventy-six miles above the Ohio, and 18 miles above the Missouri, the Illinois empties into the Mississippi from the north-east by a mouth about 400 yards wide. This river is bordered with fine meadows, which in some places extend as far as the eye can reach: This river furnishes a communication with Lake Michigan, by the Chicago river, between which and the Illinois, are two portages, the longest of which does not exceed 4 miles. It receives a number of rivers which are from 20 to 100 yards wide, and navigable for boats from 15 to 180 miles. On the north-western side of this river is a coal-mine, which extends for half a mile along the middle of the bank of the river. On the eastern side, about half a mile from the river, and about the same distance below the coal mine, are two salt ponds, 100 yards in circumference, and several feet in depth. The water is stagnant, and of a yellowish colour; but the French and natives make good salt from it. The soil of the Illinois country is, in general, of a superior quality—it's natural growth are oak, hickory, cedar, mulberry, &c. hops, dying drugs, medicinal plants of several kinds, and excellent wild grapes. In the year 1769, the French settlers made 110 hogheads of strong wine from these grapes.

There are many other rivers of equal size and importance with those described, which are not sufficiently known for accurate descriptions.

The population of this country is estimated at about 6000, exclusive of Indians. This number is made up of French and English emigrants from the original states, and negroes.

The country on the Ohio is every where pleasant, with large level spots of rich land; and remarkably healthy. One general remark of this nature will serve for the whole tract of the globe comprehended between the western skirts of the Allegany mountains; thence running southwardly to the distance of 500 miles to the Ohio falls; then crossing them northerly to the heads of the rivers that empty themselves into the Ohio; thence east along the ridge that separates the lakes and Ohio's streams, to French creek.—This country may, from a proper

knowledge, be affirmed to be the most healthy, the most pleasant, the most commodious, and most fertile spot of earth, known to the European people.

The lands that feed the various streams which fall into the Ohio, are interspersed with all the variety of soil which conduces to pleasantness of situation, and lays the foundation for the wealth of an agricultural and manufacturing people. Large level bottoms, or natural meadows, from 20 to 50 miles in circuit, are every where found bordering the rivers, and variegating the country in the interior parts. These afford as rich a soil as can be imagined, and may be reduced to proper cultivation with very little labour. It is said, that in many of these bottoms a man may clear an acre a day, fit for planting with Indian corn; there being no under-wood; and the trees, growing very high and large, but not thick together, need nothing but girdling.

The more useful trees are, maple or sugar tree, sycamore, black and white mulberry, black and white walnut, butternut, chesnut, white, black, Spanish and chesnut oaks, hiccory, cherry, buckwood, honey locust, elm, horse chesnut, cucumber tree, lynn tree, gum tree, iron wood, ash, aspin, sassafras, crab apple tree, paupaw or custard apple, a variety of plum trees, nine bark spice, and leather wood brushes. A black walnut tree measured near the Muskingum, at five feet from the ground, 22 feet in circumference. A sycamore, near the same place, measures 44 feet in circumference, at some distance from the ground. White and black oak, and chesnut, with most of the above-mentioned timbers, grow large and in great plenty upon the high grounds. Both the high and low lands produce vast quantities of natural grapes of various kinds, of which the settlers universally make a sufficiency for their own consumption of rich red wine. It is asserted in the old settlement of St. Vincent's, where they have had opportunity to try it, that age will render this wine preferable to most of the European wines. Cotton is the natural production of this country, and grows in great perfection.

The sugar-maple is a most valuable tree for an inland country. Any number of inhabitants may be constantly supplied with a sufficiency of sugar, by preserving a few trees for the use of each family. A tree will yield about ten pounds of sugar a year, and the labour is very trifling: the sap is extracted in the months of February and March, and granulated, by the simple operation of boiling, to a sugar equal in flavour and whiteness to the best Muscovado.

Springs of excellent water abound in every part of this territory: and small and large streams for mills and other purposes, are actually interspersed, as if by art, that there might be no deficiency in any of the conveniences of life.

Very little waste land is to be found in any part of this tract of country. There are no swamps; and though the hills are frequent, they are gentle and swelling, no where high, nor incapable of tillage. They are of a deep rich soil, covered with a heavy growth of timber, and well adapted to the production of wheat, rye, indigo, tobacco, &c.

The design of Congress and of the settlers is, that the settlements shall proceed regularly down the Ohio; and northward to Lake Erie.

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And it is thought probable that not many years will elapse, before the whole country above Miami will be brought to that degree of cultivation, which will exhibit all its latent beauties, and justify those descriptions of travellers which have so often made it the garden of the world.

No country is better stocked with wild animals: innumerable herds of deer, elk, buffalo, and bear, are sheltered in the groves, and fed in the extensive bottoms that every where abound; an unquestionable proof of the great fertility of the soil: turkeys, geese, ducks, swans, teal, pheasants, partridges, &c. are in greater plenty here, than the tame poultry are in any part of the old settlements in America.

448. *Vermont.*] The state of Vermont is 155 miles in length, and 60 in breadth. It is bounded on the north by Canada; on the east by Connecticut river, which divides it from New-Hampshire; on the south by Massachusetts; and on the west, by New-York.

This state, on the east side of the mountain, is watered by the Paupanhoosak, Quechey, Welds, White, Black and West rivers, which run from west to east into Connecticut river; and west of the mountains, by the river Lamoil, over which is a natural stone bridge, seven or eight rods in length, by Onion river and Otter creek, which empty by one mouth into Lake Champlain, 20 or 30 miles south of St. John's. Otter Creek is navigable for boats 50 miles. The lands adjacent are of an excellent quality, and are annually enriched by the overflowing of the water, occasioned by the melting of the snow on the Green Mountains.

A chain of high mountains, running north and south, divides this state nearly in the centre between Connecticut river and Lake Champlain. The height of land is generally from 20 to 30 miles from the river, and about the same distance from the New-York line. The natural growth upon this mountain is hemlock, pine, spruce, and other evergreens; hence it has always a green appearance, and on this account has obtained the descriptive name of *Verd Mont*, *Green Mountain*. On some high parts of this mountain, snow lies till May, and sometimes till June.

The country is generally hilly, but not rocky. It is finely watered, and affords the best of pasturage for cattle. On the banks of the lakes, rivers, and rivulets, are many fine tracts of rich interval land. The heavy growth of timber, which is common throughout the state, evinces the strength and fertility of the soil. Elm, black birch, maple, ash and bass-wood, grow in the moist low ground; and the banks of the rivers are timbered principally with white pine, intermingled with vales of beech, elm, and white oak. The inhabitants cultivate wheat, 25 and 30 bushels of which grow on an acre; rye, barley, oats, Indian corn, &c. The corn, however, is frequently cut off by the early frosts, especially on the mountains and hills. That which grows on the banks of the rivers is not so frequently injured. Flax is raised in considerable quantities, and the soil is good for hemp. Potatoes, pumpkins, and garden roots and vegetables, grow here in great plenty; and large quantities of sugar, of a good quality and flavour, are made from the sugar maple.

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The climate is very healthy. During the winter, the inhabitants generally enjoy a serene sky, and a keen cold air. The ground is seldom frozen to any great depth, being covered with a great body of snow, before the severe frosts begin. In the spring, the snow is gradually dissolved by the warm influence of the sun; and, in this way, the earth is enriched and moistened, and spring advances with surprising quickness.

449. *Miscellaneous Observations, &c. on Persecutions, Witchcraft, &c.* Pennsylvania having been principally settled by the Professing Friends, or Quakers, geographers and historians, in describing the country, have in general given an account of that people. To enter into a description of the different professions of christianity is foreign to the design of this work; yet I crave, of the reader, the indulgence of making a few remarks on the author of the American Geography, to whom I am principally indebted for my information respecting the United States. Upon the whole, he seems to rejoice at the destruction of tyranny, and in the growth of liberal principles. It seems, however, not difficult to discover in the work, that the author is an American, that he is a native of New England, and of the state of Massachusetts; for, far from shewing himself a citizen of the world, he betrays, in his writings, the partialities or narrow sentiments of the patriot. If any thing be advanced respecting his country, that appears to him disrespectful, he directly enters upon its defence, by comparing it with other places.

In this way, he shews that the absurd notions of witchcraft were not confined to New England; that they prevailed also in other parts of America, and in Europe; and that the victims of these prejudices were also put to death in the mother country as well as in America. He also shews that, while the spirit of persecution ran so high in New England, that the Quakers were actually put to death; in Old England, their sufferings were so great, that, though none of them were publicly executed, many of them, confined in prisons, died in consequence of the rigour of the law.

In a former edition of this work the persecutions in New England were passed over, and I should have been happy, on this occasion, to have omitted them. The time, it is to be hoped, is approaching, when religious prejudices will utterly cease, and the records of them be obliterated. Perhaps mankind will destroy, at length, the pile of history in general, and at last, wisely confine themselves to that portion of passing time, in which they have to act their part; perhaps they will, at length, learn to prefer the social duties towards their contemporaries, to all the entertaining and time-stealing works of history and biography. I should have been happy to have passed over the barbarous age of New England, and to have contemplated it only in its present improving state; but the author, in endeavouring to extenuate the excesses of his predecessors, seems to me to have let his zeal transport him beyond the bounds of his usual candour. He says, "the conduct of the Quakers, at several times, was such as rendered them proper subjects of a mad-house, or house of correction; and it is to be lamented, that ever greater severities were used." In this, the author

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has most unhappily expressed himself. If they were proper subjects of the former, the idea of applying the pains of the latter is absurd as well as cruel. He then says, he will mention one or two instances of their conduct, which clearly manifest a species of madness. If the instances he mentions be related with precision, their conduct and appearances seem to have been somewhat similar to those of the ancient prophets, mentioned in Isaiah xx in Jeremiah xix. 10. and in many other places; yet this minister of the gospel, such is his title, does not presume to account those insane; in so doing he might forfeit his claim to being orthodox. He tells us, that the first who openly professed these principles were women; that, afterwards, others arrived, that they were imprisoned, and their books seized and reserved for the fire. "Soon after this, as the governor was going from public worship, on the Lord's day, to his own house, several gentlemen accompanying him, Mary Prince called to him from a window of the prison, railing at, and reviling him, saying, 'Woe unto thee, thou art an oppressor;' and denouncing the judgments of God upon him. Not content with this, she wrote a letter to the governor and magistrates, filled with opprobrious stuff. The governor sent for her twice from the prison to his house, and took much pains to persuade her to desist from such extravagances. Two of the ministers were present, and, with much moderation and tenderness endeavoured to convince her of her errors, to which she returned the grossest railings, reproaching them as hirelings, deceivers of the people, Baal's priests, the seed of the serpent, of the brood of Ishmael, and the like."

If she applied these names resentfully, she was wrong; but the man whose professed business was, in a great measure, the study of the Bible, ought to have remembered, that there are expressions there, recorded to have been made use of, which on the common occasions of life we should be ashamed to adopt, but which we may suppose, he would not dare to say were improper in their application, Isaiah lvi. 10. 11. Matt. xiii. 17. 33. Luke xi. 40. xiii. 32. John iv. 10. viii. 44. Acts xiii. 3.

It is contrary to the feelings of our nature, it is contrary to common sense, to consider those as our friends, who hold us in durance, while we conceive ourselves innocent. To have proved themselves persuasive, moderate, and tender, they ought to have first liberated her; till then their proceedings were a system of coercion.

Besides, while the punishment of death may to many seem the greatest of all evils, the indignities which some of the women endured in prison, were such as, to the female character, would be felt as more distressful than death, even with torture. That I may not be understood to charge these infatuated zealots with attempting their virtue by seduction or violence, it may be right to add, that they stripped these innocent women, to examine their naked bodies, under the idea, that they were bewitched, and that they must have the secret mark of their familiar, imp, or demon, upon them.

The author says, "the persecution of any religious sect ever had, and ever will have, a tendency to increase their numbers. Mankind are compassionate beings; and from a principle of pity they will often advocate

advocate a cause which their judgment disowns. Thus it was in the case of the Quakers; the spectators compassionated their sufferings, and then adopted their sentiments." We cannot suppose that in such trying times the people could adopt what their judgment disowned; they must have believed that they were right. "Their growing numbers induced the legislature, in their October session, to pass a law to punish with death all Quakers who should return into the jurisdiction after banishment. Under this impolitic, as well as unjust law, four persons only suffered death, and these had, in the face of prudence as well as of law, returned after having been banished." If the author had remembered the expression of Paul, "Woe is me if I preach not," he perhaps would not have charged them with imprudence, for they declared themselves under similar obligations.

There is one piece of information he brings forward, which charges Charles II. with approving of the severity of the people of Massachusetts, and which is not generally known. By this it should seem that, notwithstanding his proclamation of universal toleration issued at Breda, the licentious monarch was a promoter of the persecution of the Professing Friends, which he had afterwards to correct.

Extract from the King's Letter, dated the 28th of June, 1662.

"We cannot be understood hereby to direct, or wish that any indulgence should be granted to those persons commonly called Quakers, whose principles being inconsistent with any kind of government, we have found it necessary, by the advice of our parliament here, to make a sharp law against them, and are well contented that you do the like there."

While it is afflictive to read in the history of New England, the dreadful effects of superstition: while astonishment, or even indignation may be ready to rise, in the review of a people, who having fled from persecution in Europe, became more intolerant themselves, when they rose into power, hereby giving to the enemies of the rights of man a handle, or argument, against the most salutary reforms; it may yet be observed in the conduct of the New Englanders, that there was a sincerity in their measures, which we do not so uniformly discover in the similar abominations of Europe. Here, court policy has been so mingled with the zeal of the persecutors, that it is sometimes hard to discover whether has been the more prevailing. It was, perhaps, the policy of the rulers to work upon the prejudices of the multitude, while they imposed suffering and death upon the martyrs; but they forgot not to indulge themselves in the delicacies, gratifications, and luxuries of the age, and many of them were licentious in their lives and conversation. On the other hand, the laws, and the manners of New England were severe. The wearing of long hair was accounted an abomination, and subjected to correction; the fine for swearing was 11 $\frac{1}{4}$ d.; for breaking their sabbath, 2l. 19s. 9 $\frac{1}{4}$.; all those who were detected either in lying, drunkenness, or dancing, were ordered to be publicly whipped; children for striking or cursing their parents, were to be punished with death; and, the worship of images, witchcraft, perjury, blasphemy, and

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adultery, were made capital offences. In their rage against heresy, whole colonies were driven out from Massachusetts, and to these some of the other settlements owed their origin.

The superstitious notions of witchcraft, which have been equally entertained by the Jews and the Gentiles, appeared to have been carried to their greatest extent in the 17th century of the Christian era. To be aged, infirm, poor, and friendless, in those unhappy days, was enough to induce the charge of witchcraft. Many such were put to death with form of law, and others have been worried, or harassed, out of their lives, by superstitious and frantic mobs. Even yet, the strange and horrid idea of human beings deriving superior powers and information from diabolical intercourse or influence, is not quite done away in Europe. But there was, perhaps, never a country rendered so frightfully wretched by these dark and gloomy notions as New England. The prisons were filled, the gibbets left standing, and continually laden with new victims, whose bodies were left exposed to wild beasts and birds of prey. "The innocence of youth, the infirmities of age, virgin modesty, fortune, honour, virtue, and the most dignified employments of the state were no security against the suspicions of a people, infatuated with visionary superstition. In default of witnesses, torments were employed to extort confessions dictated by the executioners themselves. If the magistrates, tired out with executions, refused to punish, they were themselves accused of the (imaginary) crimes they tolerated; the very ministers of religion raised witnesses against them, who made them forfeit with their lives the tardy remorse excited in them by humanity. The most prudent quitted a country stained with the blood of its inhabitants: and those that remained, wished only for peace in the grave. In a word, nothing less than the total and immediate subversion of the colony was expected, when, on a sudden, in the height of the storm, the waves subsided, and a calm ensued. All eyes were opened at once, and the excess of the evil awakened the minds which it had at first lulled."

In these most extravagant absurdities, there still appears to have been a degree of sincerity. We do not find that the poor and friendless were marked out as victims: their absurd but dreadful laws were indiscriminately carried into execution, contrary to those of the Europeans, without respect of persons; and their minds being thus uncontaminated with the guile and fervility of the mother-country, we need not wonder that they the more readily saw into, mourned over, and relinquished their errors; whilst the legislature of Great-Britain continued the laws against witchcraft, till a considerable time within the present century; and then, without taking the trouble of informing, generally, the minds of the people, publicly executed them for destroying witches, as the infatuated mob accounted them. At Tring, in Hertfordshire, not 20 miles from London, in 1751, these melancholy events took place. Two aged persons were drowned in a horse-pond under the suspicion of being witches, and the perpetrators of the dreadful deed hanged. And yet, at Huntingdon, the commemoration of the execution of a whole family, in that town, on the charge of witchcraft, is kept up till this day; and indeed the justice of the sentence in some sort defended

defended or asserted, by an annual missionary from Cambridge, who comes to preach a sermon against witchcraft, and to receive a stipend left for that purpose, in consequence of that unhappy (though thought by the donor praiseworthy) event. The last instance of these frantic executions, in Scotland, took place at Embo, a village near Brora, on the east coast of Sutherlandshire, where, in 1727, a poor unhappy person was burnt for the imaginary crime of witchcraft. It does not appear, that these horrid violations of humanity ever took place in Ireland: the more innocent superstitions of that country attribute uncommon appearances, or events, to those imaginary little folks, the Fairies. But, to return to the subject of religious persecution, it is worthy of remark, also, that in the province of Massachusetts, in which the most sanguinary laws had been made and put into execution against the Professing Friends, the first law was made, exempting them from contributing to the support of the public ministry; an act of assembly having passed for that purpose in 1731: while the means of persecuting them are not yet wholly removed in Great Britain and Ireland, they being still liable to suffer in the Exchequer, and in the ecclesiastical court.

Just at the time of committing this to press, the article Quaker in the Encyclopædia Britannica has made it's appearance, and I cannot but remark, that the editors of the present impression (the Dublin edition excepted) have in some measure departed from their former liberal plan, which was that of giving accounts of religious societies in their own words; for, on this occasion, while they had the candour to insert the greater part of the "*Summary of the History, Doctrine, and Discipline of the Friends*," as lately drawn up by the society of professing friends; they have yet introduced or brought forward some charges against the early professors, which, perhaps, they did not know were fully refuted above 100 years ago. The authority they give for their statements, is called "*The Theological Works of Mr. Lesly*," the zealous assertor of the divine right of tythes, a man, who, in attempting to prove too much, has defeated his own intention. Among other extravagances, he attempts to shew, that the Quakers aspire to an equality with God, that they worship one another, that they damn all the world but themselves, that they are *wisbly* possessed by the devil, and that they are *witches*.

It seems a pity, that the Encyclopædists made use of such authority. Had they had the writings of the Professing Friends before them, which he pretends to quote, referring even to the page, (as I have at present) they would have found, that their author not only gave his quotations in a mutilated way, but that there was a want of precision in even what he did bring forward. Finally, had they had the whole of his writings before them, they might have met with such language and sentiments as might have induced them utterly to reject him as authority.

Among other things, he says, "the Quakers are the faces, the dregs and lees of all the monstrous sects and heresies of forty-one, (1641) thickened and soured into a tenfold more poisonous consistency; they are all centered in Quakerism, as the beams of the sun contracted

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in a burning-laf, meet in a point, and there throw in their united force."

Again, fpeaking of the "good old days," as we have fometimes heard them called, "of Queen Befs," he fays, "there was an age when fome zeal was fhewn againft them," the heretics. "The 24th November, anno 1538, four Dutch Anabaptifts bare faggots at Paul's crofs; and the 27th November, two Dutch Anabaptifts were burnt in Smithfield. Anno 1539, two Dutch Anabaptifts were burnt betwixt Southwark and Newington; and anno 1755, a congregation of Dutch Anabaptifts were difcovered upon Eaſter-day, at a houfe without Aldgate, of whom 27 were taken, and fome made to recant. The fame year, (which was the 17th of Q. Elizabeth) one man and two women, Dutch Anabaptifts, were condemned to be burnt; but the women were converted, and the man was banifhed. The 22d of July, the fame year, two Dutchmen, Anabaptifts, were burnt in Smithfield: and in the year 1561, the queen ifſued a proclamation, commanding the Anabaptifts and other heretics, who had flocked hither from beyond feas, to depart the realm in 23 days, upon pain of imprifonment and forfeiture of goods and chattels, whether they were natural born fubjects or foreigners."

SECTION LVII.

Territories of Spain in North America.

The Spanifh dominions, in North America, extend from eighty-one to one hundred and twenty deg. weſt longitude, and lie between eight and forty-three deg. north latitude. They are bounded on the north by the American States, and numerous Indian nations; on the weſt their ſhores are waſhed by the Pacific; on the eaſt by the Gulf of Mexico and the Atlantic; and on the ſouth they terminate in the Iſthmus of Darien, which joins them to South America.

450. *Diviſions.*] They comprehend the following countries or diviſions.

<i>Countries.</i>	<i>Chief Towns.</i>
EAST FLORIDA.	St. Auguſtine.
WEST FLORIDA.	Penfacola.
LOUISIANA.	New Orleans.
NEW MEXICO.	St. Fee, St. Antonio, Tuape.
CALIFORNIA.	St. Juan.
OLD MEXICO.	Mexico, Acapulco, Vera Cruz, Tlaſcala, Mochoacan, Tampice, Guaxaca, Tobafco, Campeachy, Chiapa, Soconuſco, Vrapaz, Guatimala, Valladolid, Leon, Nycoya, Sta. Fee, Guadalajara, Zacatecas, St. Barbara, Cinolea, Charmetlan, Xalitſco.

451. *Climate, Soil, Plants, and Animals.*] So extensive a tract of country naturally includes within itself a variety of climates and soils. It is generally warm and pleasant; but the northern parts are sometimes visited by chilling winds from the north-west; while the southern parts, lying principally within the torrid zone, are excessively hot, and on the eastern shore, where the land is low, marshy, and constantly flooded in the rainy seasons: the air is extremely inimical to health. During the winter, strong winds prevail in the Gulf of Mexico, and the adjacent seas. Trade winds, monsoons, sea and land breezes are experienced here. The soil is generally very fertile, but it is in the most mountainous and sterile parts that the mines of silver and gold are discovered. This country produces rice and the different kinds of corn; a great variety of esculent roots and herbs; indigo, tobacco, cacao, cotton silk, which is the work of insects, and is in itself an assemblage of minute creatures; cochineal, logwood, mahogany, and the different kinds of timber; a great variety of dyes, gums, and medicines; and the different kinds of tropical fruits, as grapes, figs, pine-apples, pomegranates, limes, oranges, lemons, citrons, &c. together with immense quantities of sugar. The animals first brought here from Europe, have multiplied in astonishing numbers, and many of them run wild in the woods, as cows, horses, asses, sheep, goats; here are also buffaloes, moose-deer, a sort of lions and tigers, wolves, ounces, pecarees, monkeys, opossums, racoons, wild cats, beavers, the armadillo, and sloth, the flying squirrel, a variety of lizards and serpents, &c. The birds are peacocks, the macaw, the quail, the curassoe, the cardinal, and the humming-bird, linnets, larks, nightingales, &c. bustards, geese, cranes, vultures, gulls, cormorants, mews, quails; with many other species. The multitude and variety of fish that abound in the rivers, creeks, bays, and seas in this part of the world are innumerable; among these are the manatas, and five or six different species of turtle, the gar fish, and paracood, salmon, turbot, barbel, skate, mackerel, pilchards, soals, bonettas, and many other species, pearl and other oysters, cray-fish, lobsters, and other shell-fish.

452. *Minerals, Inhabitants, Trade.*] Mines of pit coal, iron ore, copper, and quicksilver have been discovered in the Spanish part of North America, and a kind of stone pitch, called copel, which the Spaniards use as tar for their shipping; it also yields turquoises, emeralds, amethysts, lapis lazuli, and other precious stones, jasper, porphyry, and very fine marble; amber and pearls are found on the coasts. There are mines of gold and silver in New Mexico, but the value of their produce cannot be ascertained. The mines of these highly valued metals, especially those of silver, in Old Mexico, are prodigious. It's most distinguished inhabitants are the Spaniards, sent hither by the court to fill the posts of government. They are obliged, like those in the mother-country, who aspire to any ecclesiastical, civil, or military employments, to prove that there have been neither heretics, Jews, Mahometans, nor any persons in their family, who have been called before the inquisition, for four generations. The predilection which administration has for Spaniards born in Europe, has reduced the Spanish Creoles to acquiesce in subordinate stations. The Mestees, who constitute the third order of citizens, are held in still greater

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contempt. It is well known, that the court of Madrid, in order to replenish a part of that dreadful vacancy which the avarice and cruelty of the conquerors had occasioned, and to regain the confidence of those who had escaped their fury, encouraged as much as possible the marriage of Spaniards with Indian women. And the Creoles transfer to this mixed progeny, the contemptuous slight they receive from the Europeans. The blacks are not numerous in New Spain; but are much caressed by their masters, who make an ostentatious display of them. These slaves assume over the Mexicans, who are called free, an ascendant, which keeps up an implacable hatred between the two nations; and this is encouraged by the law, which inflicts the most dreadful and degrading punishment on the negroes who mingle with the natives. It is not in the vicinity of the mines, towns, and great roads that the Indians enjoy ease; but in the remoter parts, where the Spaniards are not numerous, and where they have, in some measure, become Mexicans.

Mexico may be considered as the centre or heart of all the commercial affairs of Spain. The trade of Mexico consists of three capital branches. It carries on a traffic with Europe by La Vera Cruz, situated on the Gulf of Mexico; with the East-Indies, by Acapulco on the South Sea, and with South America by the same port. Though this immensely rich trade passes entirely through the hands of the Spaniards, and in the very centre of their dominions, their profits are comparatively small; for as they allow the Dutch, the English, and other commercial states to furnish the greatest part of the cargoes of the flota from Spain, so the Spanish inhabitants of the Philippines, possessed with the same spirit of indolence, which ruined their European ancestors, permit the Chinese merchants to supply the principal part of the Manilla galleon, and thus the vast produce of their mines is distributed over the world, and the Dons are relieved from that prodigious load or burthen of wealth under which, in a political capacity, they may be rather said to have laboured than grown rich.

453. *History.*] The Spanish part of America was early in the sixteenth century mostly subdued by private adventurers, commissioned by their court, but their conquests were attended with the most aggravated circumstances of cruelty. Millions of the poor Americans fell under the destructive swords of the Spaniards, their country was laid waste, they were robbed of their treasures, and their emperors or incas barbarously put to death.

Part of Spanish America, however, has been reduced in a very different kind of way; not by the force of arms, but by the labours and zeal of Romish missionaries. The Jesuits have in America prevailed upon many thousands of families of the Indians to abandon their savage manner of life; they have instructed them in arts and sciences, taught them the principles of their religion, and entirely reduced them to the European civilization, particularly in Paraguay, in South America. But the power and influence of those pious ecclesiastics have been destroyed by the policy of the courts of Spain and Portugal.

P A R T X.

D E S C R I P T I O N

O F

S O U T H A M E R I C A.

THE Spaniards, besides their extensive territories in North America, have immensely rich, and very extensive possessions in the south. Indeed, if we except the large province of Brazil, which is in the hands of the Portuguese, and the smaller settlements of the Dutch, in Surinam, and of the French in Cayenne, all lying on the eastern coast between the rivers Oronoque and La Plata, they claim the whole of South America, from the northern coast of Terra Firma and the Isthmus of Darien, through many large and fruitful provinces, to the streights of Magellan, on it's bleak southern extremity.

As the principal part of South America lies within the Torrid Zone, it's climate and natural productions are generally such as are common to tropical climates. Thick swarm the birds of most beautiful plumage, the beasts of the forest multiply in astonishing abundance, and every swamp and every fen teems with life in various forms; the most venomous creatures, the most deadly poisons, and the most sovereign antidotes, finest gums, balsams, and fruits abound here. It's gold and silver mines, and it's precious stones, are sufficiently celebrated, South America also, like other tropical countries, experiences periodical winds and tempests. Rains and floods, which drive the inhabitants to the hills, lay the lowlands under water, and fertilize the soil. The mountains and rivers in this quarter are the largest in the world. The mountains which form the Andes extend above five thousand miles in length, nor is their height less remarkable than their extent; they are computed to be three miles perpendicular: their summits are always covered with snow, even in the midst of the Torrid Zone; many of them are volcanoes, and the greater part of them mines of the most precious metals. The rivers which have their source in these lofty ridges, as the Oronoco, the Amazons, and the Plata, appear like seas, inclosing in themselves numerous and extensive isles, or pouring their mighty waters into those of the ocean, with such rapidity and force, as to freshen it for many leagues distance from the land.

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SECTION LVIII.

Portuguese America, or Brazil.

454. *Situation, Produce, &c.*] This country receives it's name of Brazil from it's abounding with that kind of wood. It lies between the equator and thirty-five deg. south latitude, and between thirty-five and sixty deg. west longitude. It is bounded on the north by the mouth of the river Amazons and the Atlantic Ocean, by the same Ocean on the east, by the mouth of the river Plata on the south, and by a chain of mountains, which divides it from Paraguay, and the unknown country of the Amazons on the west. So free a people were the aborigines of this country, that, till the Europeans came among them, they could not conceive that any person could have the audacity to command; much less that any one could be so weak as to obey.

The most capital cities or towns of Brazil are St. Salvadore, Rio de Janiero, and Fernambuco. To these three places, flotas are annually sent from Portugal, fraught with the various commodities and manufactures of Europe; for there, as well as in Spain, they let other commercial nations furnish the principal part of the cargoes of the flota, though all passes in the name, or through the hands of their own merchants, who, as well as the Spaniards, have invariably shewn the strictest fidelity, and never once betrayed the trust the foreign merchants reposed in them, whatever wars there might be between their respective nations, nor let their goods be disseized, which they would have been liable to, if acknowledged to be foreign property. The other towns are Para or Belim, St. Lewis, Siara, St. Luc, Tignares, Payraba, Tamara, Olinda, Serigippe, Paya, Porto Seguro, Spirito Santo, St. Sebastian, St. Vincent. The returns from Brazil are it's natural productions, as gold, diamonds, and other precious stones, sugar, tobacco, hides, indigo, Brazil wood, and other valuable drugs both for medicine and manufactures, vast quantities of gold, also ebony, ivory, &c. first brought here from their settlements in Africa, and thus are their immense treasures distributed over Europe.

455. *History.*] A Portuguese fleet, bound for India in 1500, stood out so far to sea, to avoid the calms on the African coast, that they fell in with Brazil. On their report, the court of Portugal undertook to colonize this country; they transported convicts here; these treated the original inhabitants with cruelty, who took every opportunity to retaliate on their invaders. This country, together with Portugal, fell under the dominion of Spain, and when the Dutch revolted from that crown, they made conquests in this country. These were afterwards driven out by the Portuguese; and that they might cease from annoying them, and give up their claims to Brazil, the Portuguese, in 1661, agreed to pay the Dutch eight tons of gold.

SECTION LIX.

French and Dutch America, or Guiana.

The possessions of the French on the American continent are now very inconsiderable. Having lost Canada and Louisiana, they have no longer any footing in North America; they still retain a settlement on the southern continent of America, to which they have given the name of Cayenne or Equinoctial France.

456. *Cayenne.*] This country is situated between the equator, and five deg. north latitude, and between fifty-five deg. west longitude. It extends two hundred and forty miles along the coast of Guiana, and near three hundred miles within land, being bounded by Surinam on the north, by the Atlantic on the east, by Amazonia on the south, and by the territories of the native Indians on the west.

The country is not yet in very high cultivation; it produces, however, sugar, coffee, and a variety of useful trees, plants, gums, &c.

457. *History.*] The French first established themselves here in 1653. After this, they abandoned the place; the English took possession of it, but the French soon returned, and drove them out; these were in their turn expelled by the Dutch; the French the same year obliged them to evacuate it, and have since kept it in their possession, though the Dutch have made some attempts to retake it.

458. *Surinam.*] Surinam, or Dutch America, lies between five and seven deg. north latitude, is bounded by the Atlantic Ocean, and the river Oronoco on the east, and north by Cayenne, and the territories of the natives on the south, and by Terra Firma on the west. Its productions are tobacco, cotton, sugar, coffee, skins, flax, and some valuable drugs for dying and medicine. It is one of the richest and most valuable colonies belonging to the United Provinces; but it is in a less prosperous situation than it was some years since, owing, among other causes, to the wars they have been engaged in with their fugitive negroes, whom they have treated with great barbarity, and who are become so numerous, having increased from year to year, that they have formed a kind of colony in the woods, which are almost inaccessible, along the rivers of Surinam, Saramanca, and Copename, and are become very formidable enemies to their former masters. Under the command of chiefs, whom they have elected among themselves, they have cultivated lands for their subsistence, and making frequent incursions into the neighbouring plantations, revenge themselves upon their old oppressors.

459. *History.*] Under Charles II. the Lord Willoughby, governor of Barbadoes, first formed a settlement in this country. When the English had dispossessed the Dutch of New-York, the latter sent a fleet against the colony of Surinam, and subdued it; and at the peace of Breda, it was agreed that each should keep the territories they had won from the other.

The other parts of Guiana are indeterminate, and unknown to Europeans.

SECTION LX.

Spanish South America.

460. *Divisions, &c.*] The dominions of Spain in South America are as follow :

<i>Countries.</i>	<i>Chief Towns.</i>
TERRA FIRMA.	Panama, Porto Bello, Carthagená, St. Martha, Rio de la Hacha, Venazuela, Comana, St. Thomas, St. Fee de Bagota, Popayan.
PERU.	Lima, Cusco, Quito, Payta, Potosí, Porco.
CHILI.	St. Jago, Concepcion, Baldivia, Imperial, St. John de Frontiera.
PARAGUAY.	Buenos Ayres, St. Jago, Assumption, St. Anne. Ciudad Real, Los Reyes.

Spain also lays claim to Amazonia and Patagonia.

The climate and soil of Spanish America vary, from the smoking swamp and parched sand, to the pleasant and healthy upland, and bleak and barren mountain top ; in general, however, from the perpetual snows on the mountains, the air is rendered more cool and temperate here than in the same latitudes in Africa.

461. *Productions.*] Among the profusion of vegetables produced in this part of the world, are the several European grains, Indian corn, rice, sugar-canes, pine-apples, olives, grapes, tamarinds, oranges, lemons, dates, figs, bananas, cocoas, almonds, guavas, coffee, pepper, &c. potatoes, cassava, and several other roots ; various kinds of gums and drugs, as sarsaparilla, dragons blood, balsams, rhubarb, storax, guaiacum, ippecacuanha, quinquina or jesuits bark, the herb paraguay, &c. tobacco, indigo, hemp, cotton, &c. Unnumbered are the varieties of trees in the forests ; some of these are of a friendly nature, and supply them with honey, vinegar, and drink ; others are most deadly ; such in particular is the malignity of the mazanillo tree, that if a person only sleep under it, his body swells and is racked with the severest tortures.

The European fruit trees are obliged to be propped here, to enable them to sustain the weight of the fruit, and the strawberries are as big as pears.

The numbers of animals in Spanish South America are prodigious ; the horses, cows, &c. originally imported from Europe have increased in astonishing abundance, they run wild in herds, and are hunted for the sake of their hides and tallow ; the other quadrupeds are the tapir, the lama, the vicunna, the guanaco, a sort of lions, tigers, and panthers, deer, foxes, &c. baboons of a large size, and prodigious numbers of monkeys of various colours, whose flesh is highly valued, sloths, armadillos, ant-bears, &c.

Among the innumerable flights of birds are the condor, the zumador; turkeys, geese, and all kinds of poultry, wood pigeons, turtle doves, partridges, snipes, woodcocks, royal cirapicos, guacamayos, gallinazos, the toucan or preacher, the despertadore or awakener, &c.

The rivers, lakes, and seas abound in excellent fish: in the last are whales and sea-wolves, with a variety of other kinds; and in the river alligators and crocodiles. The number and variety of snakes in this country are great; besides the rattle-snake, here are found some twenty-two feet long, and thick in proportion; and if credit may be given to the Spaniards, swallow a whole stag at a time: there are some that climb up trees, and thence dart upon their prey, which they crush to pieces by twining themselves round it, and others that live entirely in rivers and prey upon fish: there are likewise many of them, which, though terrifying to the sight, are perfectly harmless.

Emeralds, sapphires, and other precious stones, and quarries of lapis lazuli, and of loadstone, are found in Spanish America: mines of gold, silver, copper, tin, quicksilver, iron and lead abound in the mountains.

These various rich productions form the exports of these countries, and their imports are the commodities of Europe and the Indies. The commerce is chiefly carried on here, as in Mexico, by regularly stated fleets.

The galleons form a fleet consisting of eight men of war, of five hundred tons each, designed principally to supply Peru with military stores; but in reality laden not only with those, but with every kind of merchandize on private accounts. Under the convoy of these are twelve sail of merchantmen, not inferior to the galleons in burthen; this fleet is regulated in much the same manner as the flota, and is destined for the exclusive commerce of Terra Firma and the South Sea, as the flota is for that of Mexico. As soon as it arrives at Cartagena, expresses are dispatched to Porto Bello, and to all the adjacent towns, but particularly to Panama, that they may get ready all the treasure which is deposited there (and which has first been brought by the South Sea from Lima, which city may be accounted the centre of all the wealth of Chili and Peru) to meet the galleons at Porto Bello; here all that are engaged in the various branches of this extensive trade assemble. There is no other part of the world where business of such great importance is transacted in so short a time; for sometimes in a fortnight the fair is over: During the continuance of it, heaps of wedges and ingots of silver are thrown on the wharf without any appearance of care; and the display of gold, silver, and precious stones on one hand, and of the curious workmanship of the different ingenious fabrics of Europe on the other, is amazing.

The port of Buenos Ayres is the only place of traffic to the southward of Brazil, on the eastern coast of Spanish America; and two or three registor ships make the whole of their regular intercourse with Europe.

SECTION LXI.

Amazonia and Patagonia.

462. *Amazonia.*] The vast country called Amazonia, though situated between European colonies of Peru and Brazil, and every where penetrable by means of the great river of the Amazons, has never yet been perfectly explored : some attempts indeed have been made by the Spaniards and Portuguese, but they were always attended with so many difficulties, that few of the adventurers ever returned ; and no gold or other very valuable produce having hitherto been discovered in the country, Europeans are but little disposed to make any new settlement there.

463. *Patagonia.*] Patagonia has always been represented by geographers as a barren inhospitable country, and in a great measure destitute of wood, or any other incentive to colonization. The Spaniards however attempted it in 1581, built a town which they named Philippeville, and placed about four hundred persons in it ; but the celebrated English navigator Cavendish, in 1587, found only one of the settlers alive on the beach : Twenty-three of them had set out for the river La Plata, and were never afterwards heard of, and all the rest had perished through famine ; from which circumstance the place received the name of Port Famine.

SECTION LXII.

Islands of South America.

464. *Terra del Fuego.*] The islands of Terra del Fuego, on the south of Patagonia, received their name from the fire and smoke which were perceived on them by their first discoverers, occasioned by a volcano. The land is in general extremely mountainous and rough, and covered with almost perpetual snows ; which circumstances render the climate almost destitute of animals of every kind ; here, however, human nature finds subsistence. The simple and hardy inhabitants are low in stature, have only the skins of small seals wrapped round their bodies, and subsist principally on shell fish. These islands were thought to form a part of the continent, till Magellan discovered and sailed through the intervening strait.

North-east of the straits of Magellan lie the Falkland islands, belonging to the English. As these islands lie in a similar latitude to that of the south of England, they might naturally enough be supposed to enjoy nearly the same climate, were it not a well known geographical truth,

truth, that the southern hemisphere is much more inclement than the northern,

Falkland islands, which are divided from each other only by a strait four or five miles in breadth, are both dreary and desolate spots, affording neither timber nor vegetables in any considerable quantities: the coasts, however, are frequented by innumerable herds of seals, and vast flights of fowls, particularly penguins and albatrosses.

The island of Juan Fernandes lies to the west of South America, in thirty-three degrees south latitude, and about three hundred miles from the coast of Chili. This romantic isle, diversified with woods and water, with craggy hills and fertile spots, is famous for having given rise to the celebrated romance of Robinson Crusoe. It appears that Alexander Selkirk, a seaman, and a native of Scotland, was put ashore, and left in this solitary place by his captain, where he lived some years, and was discovered by Woodes Rogers in 1709: when taken on board, he had through disuse so forgot his native language, that he could with difficulty be understood: he was cloathed with the skins of goats, would drink nothing but water, and could not for a considerable time relish the ship's provisions. During his residence on this island he had killed five hundred goats, which he caught by running down; and many more he marked on their ears, and again set at liberty. George Anson's crew caught some of these goats thirty years after, which discovered in their countenances and beards strong marks of age.

SECTION LXIII.

American Indians, or the Red People, with a Comparison between them and the Whites.

465. *Indian Tribes.*] The internal parts of North America, and thence to the vast Pacific on the west, are unknown to Europeans, and inhabited by numerous nations of Indians. The tribes whose names we have heard of, are nearly as follow, from north to south; the Esquimaux, Chippeways, Satanas, or Shaounon, Adirondacks, Conoys, Nanticokes, Mawhiccons, Munseys, Wapingers, the Ounamies, Outagamies, Algonquils, Nepissings, Sakis, Nokeis, Tsonontuans, Goyogans, Onontagues, Oneyouts, Agnies, Mohawks, or Maquas, Connecedagas or Rondaxes, Oswegatches, Messesawgas, Ultawas, Mattaugwessawauks, Miamis, Hurons, Illinois, Outrachies, Loutres, Savannois, Sioux, Sauteurs, Waffes, Anantoocahs, Nipegons, Hawoyzaks or Rat Nation, Killistinoes, Followens or Wild Oats, Poes, Renards or Foxes, Sagamores, Narragansetts, Mingoes, Shawanees, Delawares, Oneidas, Senecas, Caghnugas, Cayugas, Cowetas, Muskegoes, Corees, Assiniboils, Christinaux, Iroquois, Tuscaroras, Creeks, Cherokees, Kataubas, Choctaws, Chickesaws, Natches,

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Apaches, &c. In South America also, there are immense tracts of land inhabited by independent nations of Indians. In Guiana, are the Caribbees, Worrows, Accawans, and Arrowauks; in Amazonia, Omaguas and Yurimaguas; in Brazil, the Tapuyers and Topinamboys; in Paraguay, the Chaconese and Guaranis; and in Patagonia, the Pampas, the Cossares, and Patagonians.

When any of the Indian nations go to Philadelphia, on business with the government, it is thought proper by the Professing Friends, or Quakers, there, to continue an old custom of shewing a friendly regard to them, in order to inculcate a peaceable disposition, and to remind them of the cordiality, which, from the beginning, subsisted between their ancestors, and has continued uninterrupted for many years: on which occasions the Indians have always expressed much pleasure and satisfaction.

To the Children of the Friends of Omas, (the name given by the Indians to William Penn, being the word in their language for a feather or pen), who first settled in Pennsylvania, the request of *Corn Planter*, a Chief of the Seneca Nation.

Brothers.—The Seneca nation see, that the Great Spirit intends that they shall not continue to live by hunting, and they look around on every side, and inquire, who it is that shall teach them what is best for them to do. Your fathers have dealt fairly and honestly with our fathers, and they have charged us to remember it; and we think it right to tell you, that we wish our children to be taught the same principles by which your fathers were guided in their councils.

Brothers.—We have too little wisdom among us, we cannot teach our children what we perceive their situation requires them to know, and we therefore ask you to instruct some of them; we wish them to be instructed to read and to write, and such other things as you teach your own children; and especially to teach them to love peace.

Brothers.—We desire of you to take under your care two Seneca boys, and teach them as your own; and, in order that they may be satisfied to remain with you, and be easy in their minds, that you will take with them the son of our Interpreter, and teach him also according to his desire.

Brothers.—You know that it is not in our power to pay you for the education of these three boys; and therefore you must, if you do this thing, look up to God for your reward.

Brothers.—You will consider of this request, and let us know what you determine to do. If your hearts are inclined towards us, and you will afford our nation this great advantage, I will send my son as one of the boys to receive your instruction, and at the time when you shall appoint.

Corn Planter, his † mark.

Signed Feb. 10, 1791, in the presence of—Joseph Nicholson.

From the People called Quakers, the Children and Descendants of those peaceable People, who first settled in Pennsylvania, being the Friends of Omas.

TO CORN PLANTER, the Seneca Chief; or Joseph Nicholson, the Interpreter, to be by him explained to the said Chief.

The written message of Corn Planter, dated at Philadelphia on the
10th

10th day of February last, was not received by us until some weeks after. His request, that we would take under our care two Seneca boys, one of them his own son, accompanied with the son of Joseph Nicholson, we have considered; and do agree to receive them, when they can be conveniently sent to us; intending they shall be treated with care and kindness, and instructed in reading, writing, and husbandry, as the children of our Friends are taught. The governor of Pennsylvania, when informed of this proposal, having expressed his approbation thereof, as did general Knox.

Signed on behalf, and by appointment of, a meeting of the representatives of the said people, the 2d day of the Sixth-month, called June, 1791.

By several Professing Friends.

Substance of the Conversation of the Professing Friends, at several interviews with the Deputies from the Indian Southern Nations, at Philadelphia, Second month, 1792.

Brothers of the Cherokee Nation, or Red People,—We who have spoken with you, are glad to see you here, and rejoice that you are come as messengers of peace. We wish you to know, that there are many of our brethren, called Quakers, settled in most of the United States who are lovers of peace, and do not meddle with war; and we are very sorry that there have been wars and bloodshed between you and the people of the United States; for we believe that we are all children of the same Great Creator, who intended that we should live in love and peace with each other; but when any of his children get drunk, cheat, steal, or hurt and kill one another, he is displeased with them; and when they will not regard his good spirit placed in their hearts, then they go into all kinds of wickedness, which brings misery upon them, and they are not afraid even to destroy the lives which came from the hands of the Great Creator. But if we pray to him for the help of his good Spirit, and feel it in our hearts, and attend to it, we learn to pity those that the evil spirit makes unhappy, and we can do good even to our enemies.

We therefore much desire, that our brothers of the Cherokee Nation, may be brought more and more to the knowledge of the Great Creator; and that, as his children, they may live in love and peace with each other, and with all men; and then we believe the Red People would not live so much by hunting, but employ themselves in tilling the ground, learning useful trades, and get proper school-masters to teach their children, that they might be brought up to love and obey the great and good Spirit who made them. These things we wish our brothers of the Cherokee nation to think of, and, above all, to pray in their hearts to the great and good Spirit, for his help in all their honest undertakings, that they may be happy in this life, and after death in an everlasting eternity. We desire these words from us, your brothers, may take deep hold in your minds, and warm your hearts, that so you may be strengthened to tell them to the people of your nation. We also pray that the great and good Spirit may conduct you home in safety, and make you the messengers of good tidings from the government of the United States. Farewel. Signed by several Philadelphia, 19th of Second-month, 1792. Professing Friends.

From the above conferences between the Reds and peaceable Whites,

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it appears that the people called Savages believe in a Supreme Being, who careth for them, and who will reward the benevolent. Their gratitude towards, and confidence in, those whom they account their benefactors, how ardent and sincere! If the Whites could entirely divest themselves of their prejudices, and feel no consciousness of spiritual superiority, what an extensive field of mutual communication might hereby be opened! What benefits, for instance, the Quakers might be the instruments of communicating, if happily, through their example, the principle of peace were diffused! And what solid advantage they might themselves derive from the adoption of the ideas and manners of some of these simple and innocent people! With some of the Indian tribes the women bear an equal part with the men, in the business of their Public Assemblies; moreover, without the imputation or suspicion of indelicacy, they can declare their affections to the men.

Additional Facts concerning the North-West of America, the South Sea Isles, &c.

When Cook and the other British navigators were sent out upon their famous voyages of discovery, it was not clearly foreseen, that any particular commercial advantages were to arise from their expeditions. But, the extension of the fur-trade to the north-west coast of America, is already one beneficial consequence from Cook's discoveries. Of all materials for human clothing, none are more salutary to the inhabitants of the northern and middle latitudes, than the furs of the arctic quadrupeds. In the Chinese empire and in Europe, the demand for these furs is immense. They are to be procured from the northern parts of Europe, Asia, and America. But, the progress of civilization northwards, has long since begun to render those animals which are covered with fur, considerably rare in the north of Europe. As civilization is farther extended, these animals will be still more exterminated. The acquainting us with a coast, before unknown, on which furs may be procured in the greatest abundance, and along which civilization cannot be expected soon to spread,—was, therefore, a commercial service of high utility. From London, from India, from the United States, expeditions for the fur-trade, on the north-west American coast have been, for a considerable number of years, fitted out. The first attempts were exposed to some of those inconveniences, disappointments, and losses, which ever attend any considerable new undertakings. But, the trade was soon found to be, on the whole, beneficial. The Russians and the Spaniards share it with the English. The disputes concerning the possession of Nootka Sound arose between Spain and England, in consequence of the benefits which were promised by this trade. They were happily adjusted so as to leave the trade still open to Britain.

In consequence of the settlement of those disputes, the late Captain Vancouver was sent out, to explore these coasts more particularly than had been done by Cook. He spent several years in accomplishing this object. The result of his discoveries has evinced the impossibility of the long-sought north-west passage, and has particularly acquainted us with the existence of isles on the western coast of America, not less numerous nor extensive than those on it's eastern side. Vancouver's
discoveries

discoveries coincide with those of the British and American fur-traders, which were, in some instances, prior to his; and in others, came only to confirm them.

The unfortunate La Perouse explored these same coasts. But he sailed along them with greater rapidity than Vancouver, or the traders, and at a greater distance from the land. His discoveries were comparatively few. But that which he named Port des François, where he lost two boats with a number of his officers and men, and of which he took possession in the name of the King of France, appears to have escaped the investigation of Vancouver.

In connection with the fur-trade to the north-west coast of America, the Sandwich, the Friendly, the Society Isles, and the other similar groupes in the Pacific Ocean, have acquired new importance. These are victualling and wintering places for the ships engaged in that traffic. It is earnestly to be wished, that Britain would form establishments for the protection of the natives and the preservation of order, and the anticipation of the projects of other maritime powers, upon all the most considerable of these groupes of isles. Introduce into them the cotton plant, the silk-worm, the sugar-cane where it is wanted, the coffee-plant, and all other useful vegetables, that are likely to grow in their soil and temperature. Though European animals cannot be introduced into them, without many unfavourable accidents, yet these may surely be, at last, surmounted. It is probable, that, in some future age, the South Isles, on account of their fertile soil and happy climate, may become the favourite seats of all the more exquisite mechanical arts, of all the fine arts, of literature, and of science.

Convinced that savage nations are not to be civilized by any other means so readily as by the gentle, tolerant, benignant propagation of Christianity among them; we have observed, with infinite satisfaction, that the Missionary Societies of Britain have sent out missionaries to all the principal groupes of isles in the South Sea; and maintain with them, a regular correspondence. This is one of the noblest efforts of religion and humanity. May Heaven crown their endeavours with success!

The first difficulties of the establishment of the British colony at Botany Bay have been at length surmounted. It begins, already, to flourish. No measure of government can be more praiseworthy than that which renders human beings, who, at home, were hurtful to themselves and others, thus useful in exile. Many of these exiles must, indeed, be irreclaimable. But, it is probable, that, by no other means could so many be recovered to virtue. And, as lives must be wasted in the formation of this new establishment, none else can be so easily spared. These southern colonies of Britain may, one day, become, perhaps, as considerable as some of the most opulent American states.

F I N I S.

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